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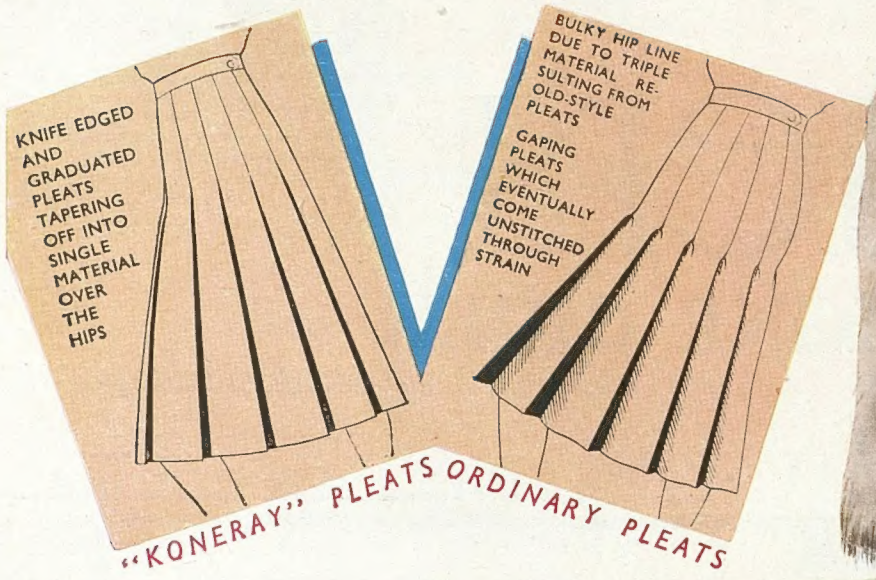

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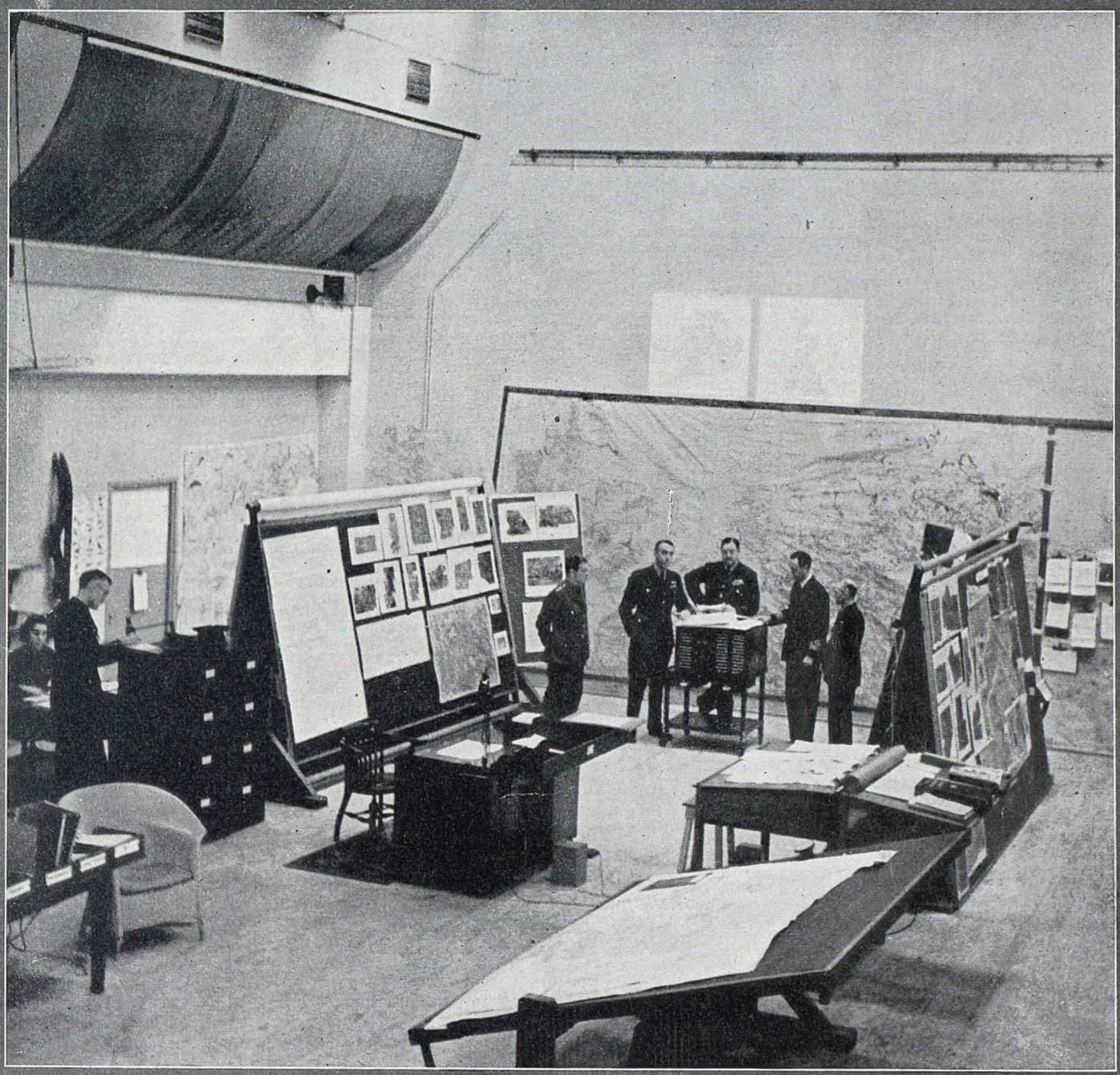

THE VERY NERVE-CENTRE OF THE R.A.F.'s BOMBING ORGANISATION: THE OPERATIONS ROOM, WITH THE AIR OFFICER COMMANDING-IN-CHIEF AND HIS STAFF PLANNING THE NIGHT'S OPERATIONS—*An Air Ministry official picture just released for publication*

This picture, like the others reproduced on pp. 35, 36-37 of this issue, comes from *Bomber Command*, the Air Ministry's account of the offensive against the Axis from September 1939 to July 1941, which has just been issued by the Ministry of Information. It shows the general public for the first time the hitherto closely-guarded secrets of the operations room, the very nerve-centre of the R.A.F.'s bombing organisation. "First, then, let us come with the Air Officer Commanding-in-Chief into his operations room at Headquarters," runs the official account. "It is nine o'clock in the morning. . . . Whether sunshine or rain prevails outside, inside downstairs there is always the soft light of a spring day shining steadily from half-concealed reflectors upon an oblong room of lofty and gracious proportions. It is air-conditioned, floored with rubber and entered by a single door only. On the main wall opposite the door there are three blackboards, each about 30 ft. by 10 ft. These display the order of battle. The Commander-in-Chief has only to glance at them to see at once the exact strength of every Group, the whereabouts of the Squadrons in it, and the total number of aircraft available"

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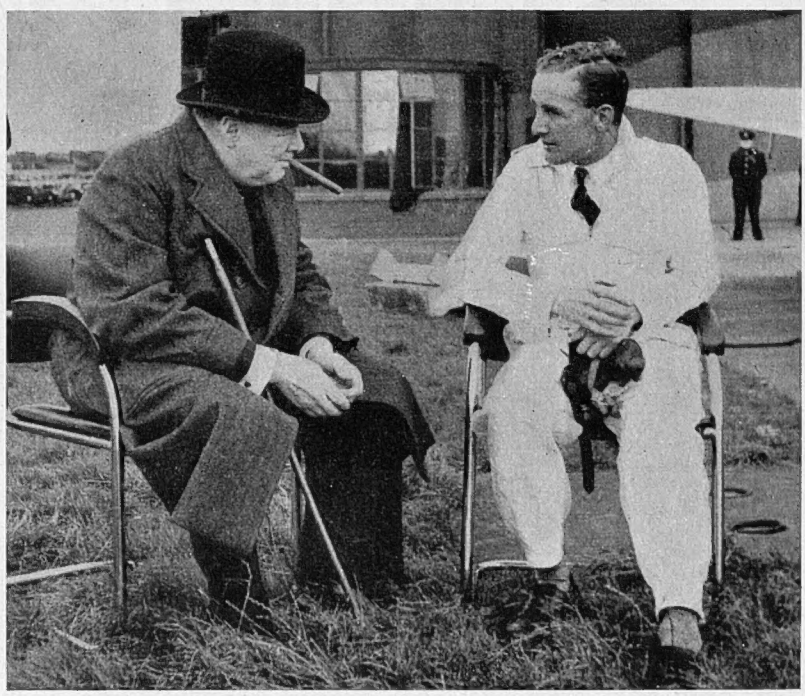
A WAR NEWSLETTER—No. 110

1, NEW OXFORD STREET, W.C.1.

Mr. Churchill's Review.

—Another comforting speech came from Mr. Churchill on the last day of September. The "bull-point" which he released was no doubt his considered opinion that the Nazis have lost an alarming proportion of their air strength, a point which cannot fail to comfort the Home Front, if it embarrasses those in charge of the "don't-be-complacent" campaign. Bull-point No. 2 was his review of the Battle of the Atlantic, which the Premier strenuously qualified with strong discouragement of complacency. We assume that the Government has other sources of accurate information as to the Nazi wastage of aeroplanes besides the daily statistics served out in the Soviet communiqués. In modern war, a war communiqué is (against an enemy of matchless liars) in large part propaganda. With the best will in the world, it is impossible to believe that the Red Air Force can supply within a few hours an accurate number of the Nazi planes "destroyed on the ground." We do not attempt it ourselves under easier conditions. Yet in a recent period of forty-eight hours we learned that the Red Air Force had destroyed over 200 Nazi planes for the loss to themselves of 57, and that 159 had been "destroyed on the ground." On such figures and estimates we cannot base an accurate table of wastage. I don't know whether anybody else has troubled to keep a record of the Russian daily publications of plane casualties inflicted on the enemy in the past eight weeks. If he has, he must gape at the astronomical figures reached and at the extraordinary cheapness with which the Soviet Air Force achieved them. I confess I hope that the Premier has additional sources of information. One other point on Mr. Churchill's review. He has the trust of the nation and of his Government. He is in an impregnable position. He has no rival in the arts of oratory. He knows well that the easiest way in which a statesman, impregnably enthroned, can win his audience is to put up "Aunt Sallies" of minority criticism and then knock them down one by one with his oratorical coconuts, amid loud laughter and cheers. It may be because I read only the stately, dignified newspapers that I was surprised by his troubling to reply elaborately to his critics. In every war there are arm-chair critics and amateur strategists who air their views, but (reading in the limited field of the Press which I have indicated) I should say that to-day there is less published criticism of the Government than in any war we have ever fought, and that Mr. Churchill can afford to disregard totally what there is. He needs no artificial aids to get his oratory across. Facts, put as he can put them, are quite telling enough. We only ask for facts—that is, *vital* facts—given in his inimitable way.



THE PRIME MINISTER CHATS WITH MR. ALEC HENSHAW: Mr. Winston Churchill has just concluded a tour in which he saw bomb damage, inspected A.R.P. workers, and visited factories and works. He was accompanied by Mrs. Churchill, and the two received a tremendous welcome wherever they appeared. Above, the Prime Minister is seen talking to Mr. Alec Henshaw, the famous airman who is the holder of the Cape-to-London record: he is now a Spitfire test pilot. Mr. Henshaw had just landed after a demonstration flight and was being questioned by Mr. Churchill, who wished to know his reactions to the terrific speed at which he had been travelling

One Sentence from Hitler's Speech.

—"How difficult it was for us to look on silently . . . when a Great Power attacked, with all his might, a small country." That sentence from Hitler's Winter Relief speech gave me the reason for the commendable saving of breath shown by British and American commentators on Hitler's oration. The moment comes at last when remonstrance admits defeat; when it ceases to be worth while to point out inconsistencies. A man capable of saying the things Hitler says can and does win in any war of mere words, but whether the victory is worth winning is another matter. Mad as he is, he has all the criminal lunatic's cunning, and in the war of words asks to-day no more than to carry his Nazi audience with him while the torrent of his words continues to roar. That is possible only with an audience totally bereft of any sense of humour. For even men enchained physically and mentally must have smiled at the above-quoted sentence if they possessed a spark of humour. Hitler is lucky in his immediate audience. But even in Germany his oratorical triumphs enjoy a shorter and shorter life. Beyond the boundaries of the Reich (his shrewdness must have convinced him) he has long since become *vox et præterea nihil*. He has twisted the German language into a mere jangle of rusty scrap-iron and tin pots. "Macbeth has murdered sleep"; murdered language, truth, sanity, justice, freedom, joy, humour, civilisation. But he who takes the sword (every schoolboy knows) shall perish by the sword; and as certainly he who uses his tongue for like evil purposes is at the last choked by his own words.

The Miracle.

—We have been warned (very properly, but perhaps *ad nauseam*) not to sit with folded hands and expect a miracle to come to our aid. Yet (whether we have used or folded our hands) a miracle has already come to us. It is the resistance to the death of the Russian people on our side. What it has already meant to our cause, and to our chance of success, only those whose memories can go back to May last, and *then* only those who at that time could separate truth from falsehood and bald reality from wishful thinking—only those few can estimate. The miracle may rank with the greatest in our history or traditions. Suddenly from the blue a host of untold millions—who might have joined the Nazi ranks, for all we knew—were found fighting by our side. These millions were unlike any other race of Europe. In their philosophy, of which we understood nothing at the time, and even now hardly anything, the standards of settled, tradition-bound—yes, "capitalistic"—races hold no meaning. Their very view of life, of human existence, differs from ours, as does their view of property, personal possessions, historic treasures, traditions. To them, life is a small thing, a puff of grey vapour which vanishes; to them, property and possessions have acquired no sacrosanct respect from long use and enjoyment. When they fight, they are prepared to give more than we can give—they give *all*, including life itself, not as an individual act of heroism or sacrifice, but as a commonplace of a citizen's duty. The huge army is no "mortal" army within our experience. That is the miracle that has come to us—a double miracle in that this mighty host was found suddenly, and utterly unexpected, fighting on our side; and that it was composed of beings not "of like passions with ourselves." But the miracle and the crashing astonishment which Russian resistance and revealed Russian philosophy have brought to us are rather naïvely hailed and confessed. As regards the second part of the miracle, our surprise would have been less complete, if we had not only read, but marked and learned from Tolstoy, Chekhov and a school history-book on the Napoleonic campaign of 1812. In the past centuries the Russian peasant—and, for that matter, the bourgeoisie—has had no opportunities to regard human existence or individual possessions as assets so desirable in themselves that sacrifice of them transcends the mere duty of citizenship in national emergency. That is the prime difference between Russia and the bulk of the European races. We persist in the foolish practice of mixing up politics with human nature, the ephemeral with the eternal, the false with the true, the trivial with the all-important, the toys of men with the tools of God.

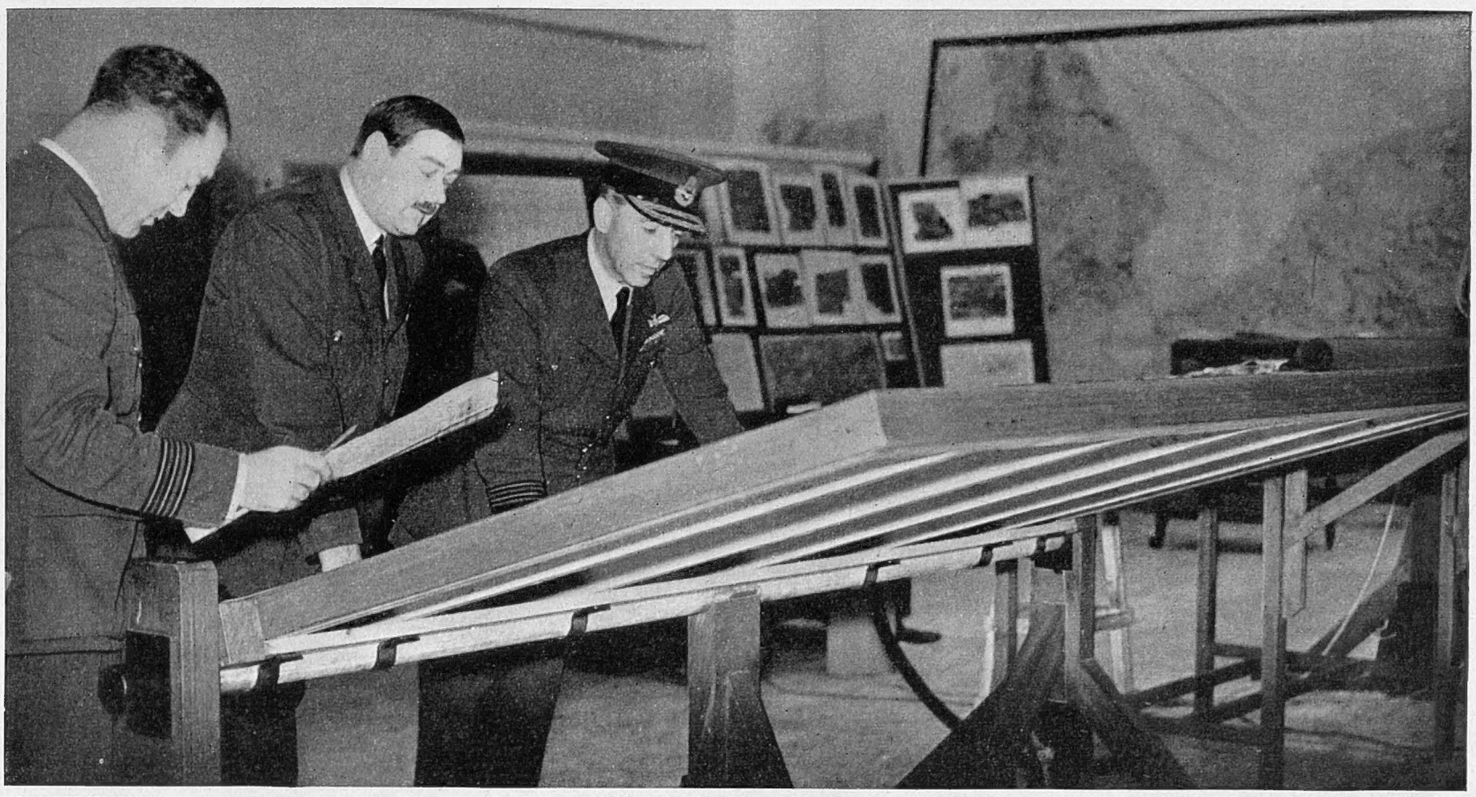
We Can Learn from Russia.

—"Life is sweet, brother" is no hedonist slogan. It is bare common sense that man should get every grain of joy and pleasure and comfort out of the hard and often barren field of human existence; and they are lucky whose lot is cast in the warmest, most fruitful soils. But, if we still do not understand nor like the present political regime in Russia, we can learn a great deal from the example of the Russian people and their conception of citizenship in this common crisis. One does not need to look deep nor to look far into the war mobilisation of Britain in the third year of war to discover how large a proportion of our people are still playing at war, still have their roots in the old world, still mark time in wishful thinking. More than half our people, no doubt, are working themselves to the bone, but there are hundreds of thousands still who are doing little or nothing, whose minds have not even grasped the nettle of our crisis. With some, it is the failure of organisation; they are the type which waits to be sent for. Others are incurable or too flabby to be used, if got at. Others, again, willing to give their best, perforce give their second best because their particular usefulness is not recognised nor tabulated for national service. Such wastage is inevitable, but there are damning proofs that the wastage of effort is still disgraceful. Nearby in my area there is a country house consecrated to the teaching of young cabaret artists. Here may be seen scores of beautifully painted and manicured virgins learning the arts of pleasing menfolk and (horrible to relate) among them (like half-fledged cockerels among the pullets) several youths of seventeen years old (wearing sandals and red jumpers and spouting the extreme nonsense of the extreme Left), who in this war to the death are learning tap-dancing and pirouetting and making epigrams about the imbecility of war. There is no authority and, I think, no general outcry, that would hale these Piccadilly boys before the sergeant-major, nor send these painted virgins into the shell-filling factory. What need have we of further witness? Look in at any hotel in Devonshire or Westmorland; look round your own town or village. One look will convince you that we can learn a lot from Russia after two years' start in the race for an all-out national effort. Does not this state of things in Britain justify all the warnings of our Ministers and render any criticism of such warnings very unjust and unpatriotic? Acquit me if I seem to seek for myself a name for consistency, a personal justification. I contest that it is not words of warning but *action* that we need from these Ministerial orators. Let them talk less and act more forcibly. Let them organise the nation for war, let them hunt out the *embusqués*, let them set the escapists to work and stuff the square pegs into square holes. The Government does not exaggerate the disease, but mere words and phrases will not cure it. It needs the knife.

Tin Foil or Brass Tacks?

—It is a part of our creed—recently strengthened by experience of national character in times of trial—that we are a great nation. Our national leaders are often good enough to compliment us and even flatter us on this score, and we hear their fulsome words with blushes. But sometimes their actions betray their flattery. They sometimes act towards us as if in their hearts they believed us to be mere children still, to be won with toys and gimcrack and to be compensated for unsatisfied grievances by a wide distribution of bits of ribbon or pretty badges. The British Government is not the first to employ this comparatively cheap method of keeping the people sweet. The French recognised its merits decades ago and most other European Governments employ it still. But in Britain I believe those who have legitimate grievances still prefer "a handful of silver" to "a ribbon to stick in their caps." Our glorious merchant marine would rather have an assurance and guarantee that after the war they will not be "shelved again" than a new title or a new uniform. Our unpaid Home Guard would rather be supplied with more effective facilities for practical training in the weapons they possess, and have their private out-of-pocket expenses repaid with less fuss and fewer formalities, than be constantly tricked out with new badges, flashes, shoulder-labels and chevrons. And men who have borne the burden and heat of defence against bombing would rather obtain reasonable material recognition than a brooch or a badge or a Ministerial eulogy. Badges and eulogies are undoubtedly cheaper, and Ministers are very right to consider the taxpayer's pocket. But sometimes "a handful of silver" is cheaper in the long run than a "ribbon to stick in his cap." I, for one, am not convinced that the British public is either so childish as Ministerial action sometimes suggests, or yet so archangelic as Ministerial speech assures us it is. We are a hard-headed race, and we can see through soap-suds; and, noble as some of us are, we are still shrewd enough to know on which side our bread is buttered. On the other hand, it is obvious that there is now no truth in a general application to our race of the judgment that "the average Briton dislikes military uniforms and is rather ashamed of wearing medals and ribbons."

THE OLD STAGER



AIR STRATEGY: MAPS, GRAPHS AND PHOTOGRAPHIC REPRODUCTIONS, PINNED ON PIVOTED TABLES, GIVE THE COMMANDER-IN-CHIEF A BIRD'S-EYE VIEW OF THE WHOLE FIELD OF BATTLE. This is another corner of the Operations Room shown on the frontispiece of this issue

"BOMBER COMMAND"

The C.-in-C. Plans His Strategy

To quote from the Air Ministry account just published under the title of "Bomber Command"—"In the left centre of the Operations Room stands the desk of the Commander-in-Chief. Near it are three large tables mounted on pivots so that they can be moved at will from horizontal to the perpendicular. On the first of these are pinned the maps in current use for the night's operations. There is also a photographic mosaic of the whole territory of the Ruhr. On the second table there is a large map of Europe showing the routes to the various targets and places where German night-fighters seek to intercept our bombers or where they are known to patrol. The data on this map are changed every twenty-four hours in accordance with information supplied by the Air Ministry. On this table, too, are a number of target maps grouped round a large-scale map showing where the targets they depict are situated. The third table displays graphs from which can be learnt immediately the number of times various classes of targets have been attacked. There is also a map of Berlin and enlarged photographic reproductions of the more important targets. Seated at his desk the Commander-in-Chief makes a rapid appreciation of the situation from the reports of the previous night's operations and from the information which may be supplied to him verbally by the senior air staff officer and the group captain in charge of operations. . . . The Commander-in-Chief returns to his desk with his mind made up . . ."

THE MIND THAT PLANS: THE COMMANDER-IN-CHIEF, BOMBER COMMAND R.A.F. (Air Marshal Sir Richard Peirse), at his desk in the Operations Room. It is he who decides the direction of Britain's mighty bombing forces by day and by night

THE ORDERS REACH THE OPERATIONS ROOM OF THE STATION, and the operation ordered by Bomber Command Headquarters is then worked out in detail. What is best route to the target? How can it be identified? What of the weather?

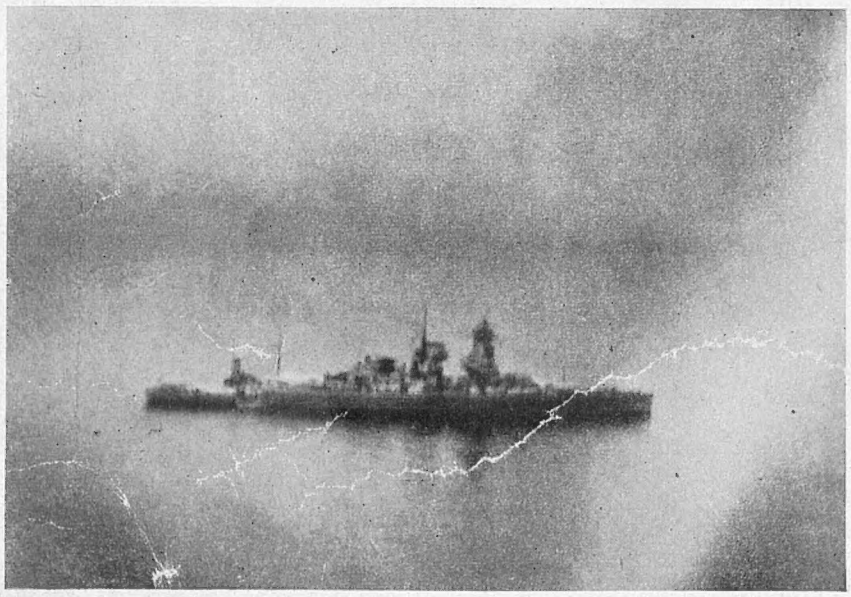
"BOMBER COMMAND" *(cont.)*

THE tale of the fighter in defence of Britain has been told and will not perish. "The Battle of Britain" was a picturesque story of fantastic patterns woven at vast speed in skies watched by the people themselves and of victory accomplished.

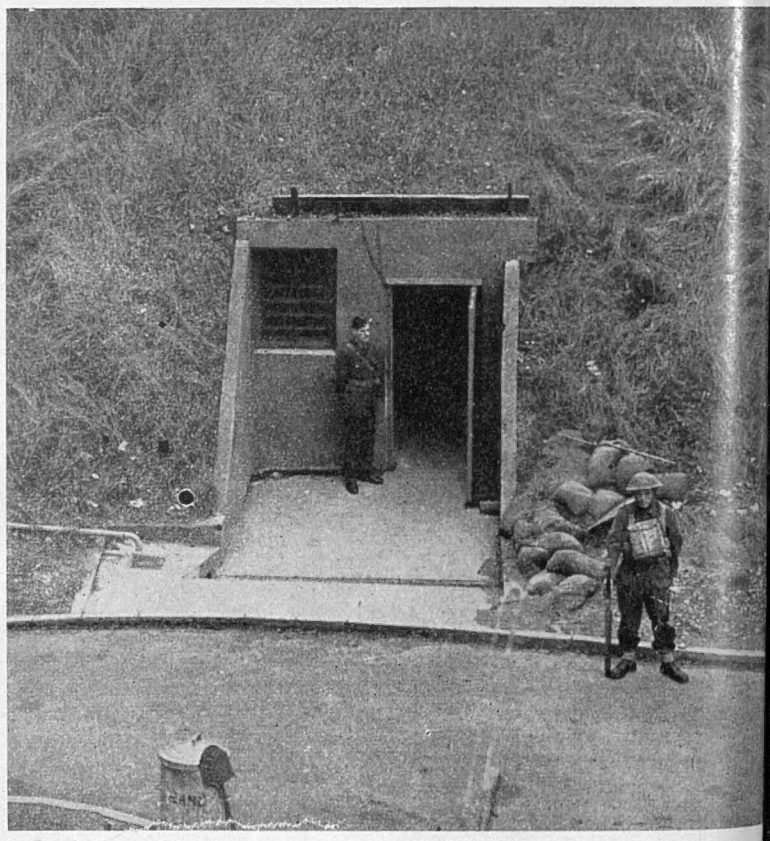
Now is the turn of the bombers, whose long, steady, hazardous task has brought them to the threshold of great achievement. It is to the pioneers of the bomber crews that the present healthy state of affairs is due. "We shall bomb Germany by day as well as by night in ever-increasing measure," said the Prime Minister last June. The fulfilment of that promise is coming, and is possible because of the men who flew the earlier make of machines, who made valiant sorties into uncharted skies. Their story is now unfolded in a 130-page booklet, issued from H.M. Stationery Office for the Air Ministry by the Ministry of Information at 1s. 6d. net.

Every aspect of the struggle of the bombing force against great odds is here in the plainest language. It is the saga of "the gentlemen of the shade, the minions of the moon"—of 24,000,000 miles flown by Battle, Blenheim, Hampden, Wellington and Whitley—of the period of preparation for events on the threshold of which we are now standing.

Unequal in numbers with the enemy, the outbreak of war found the bomber force compact, ready and resolute. In this book, we get to know the men, imaginative, brave yet cautious, cool yet daring, who slept by day and fought by night.



THE FIRST TARGET OF THE WAR: SEPTEMBER 4, 1939: The "Von Scheer" in the Schillig Roads, taken by surprise, seen through rain squalls from the Blenheim which skimmed over the tender at her stern and bombed her.



NERVE CENTRE: Beneath this grassy mound, covered with bluebells in sp protected by deep layers of concrete, lie the Headquarters of Bomber Comm

We read of their manifold tasks—the attacks on the German Fleet, and seaplane bases; the "leaflet raids"; operations in Norway, Belgium, Holland and France; bombing of the "invasion" ports; mine-laying from the air; attacks on shipping and the assaults on German military, naval and industrial targets.

The attack on the German Fleet is history, but it may not be sufficiently known that Bomber Command in gigantic operation was ordered avoid targets on land, and not to bombs on any ship lying alongsi close to a quay, to avoid inj civilian population. For six mo enemy ships enjoyed this p immunity.

The campaign in Norway one against heavy odds, opera with very little chances of su

Above and on left—**INTELLIGENCE ROOM: Here, reports come in constantly from the Group Headquarters and Stations. Pieced together, they form the great mosaic of Operations control**

without local bases, against an enemy so determined that he sent his motor transport along the autobahn with headlights still blazing, and operated shipping under glaring arc lamps.

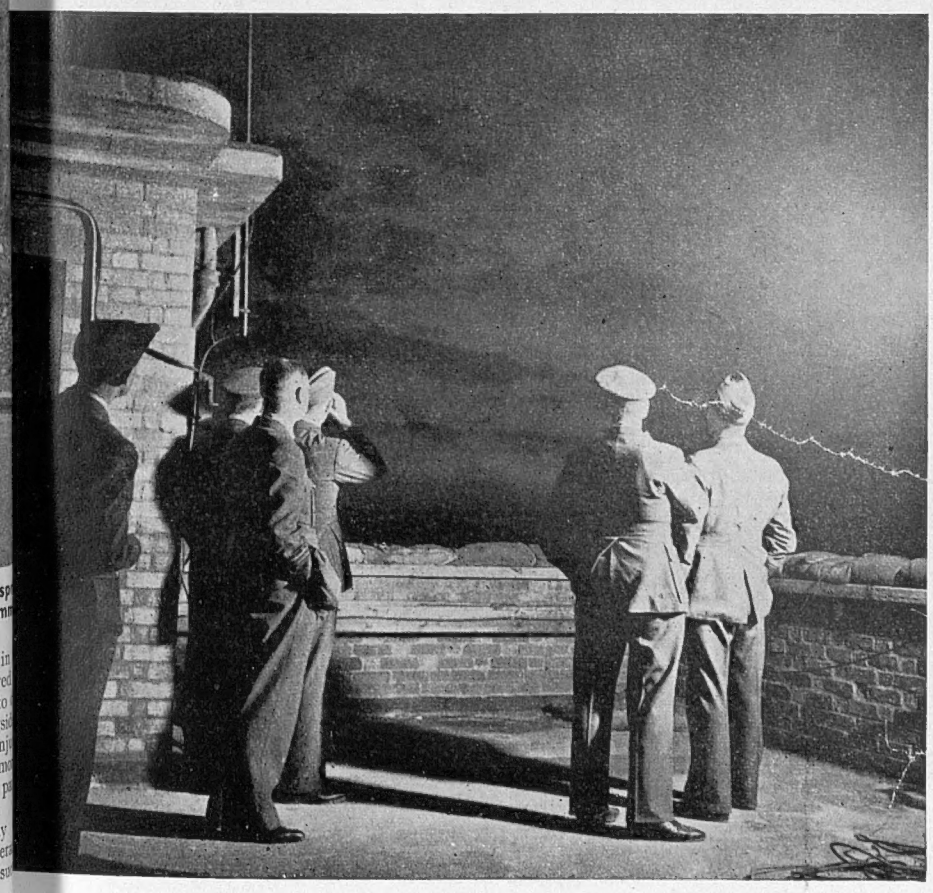
Determined attacks by our bombers could not save Holland. The Germans overwhelmed us in numbers, and the Dutch Air Force was wiped out in three days. After the fall of France one of the greatest achievements of Bomber Command was helping to stop the invasion. There is abundant evidence that it was intended. In due course no less than 3,000 self-propelled barges of a carrying capacity of 1,000,000 tons, with another 4,000,000 tons of shipping, were assembled at the invasion ports, which sustained over 500 attacks.

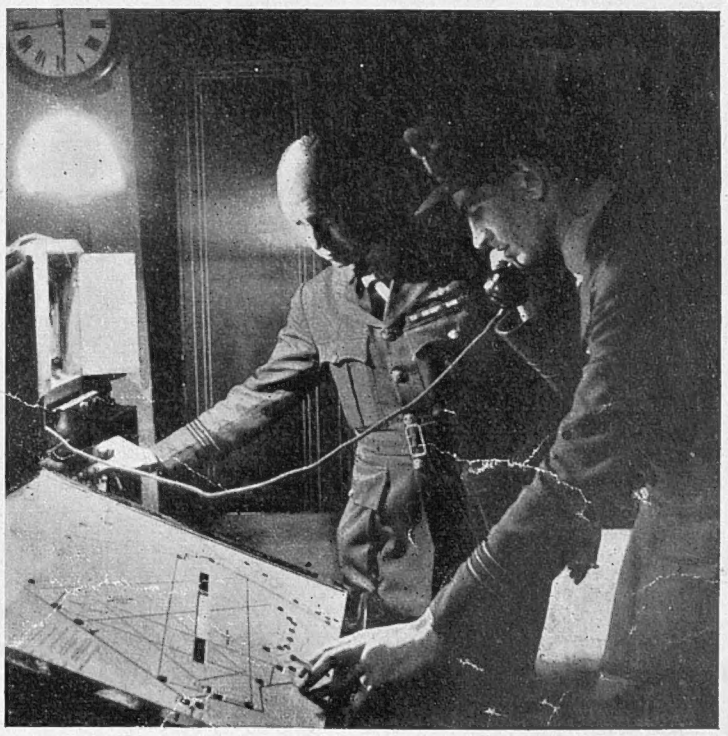
The Battle of the Atlantic will assuredly be won. Throughout that great ocean the dogged and determined courage displayed by the crews of the ships of the Royal Navy, of the reconnaissance, bomber and torpedo aircraft of the Coastal Command, of the merchant vessels in convoy, is slowly but surely achieving victory. The part played by Bomber Command is to harass the enemy's attacking craft, Kondors, submarines, surface raiders, in their bases, not only in France, but also along the northern shores of Germany, in the places where they are being built.

Lastly comes the specific accounts of the bombing of the enemy vital spots, and, although most of the incidents have been dealt with in communiqués, they are here pieced together to show how they formed a scientifically evolved plan which will end in the knock-out blow. There is abundant evidence of the damage already caused even in those days of comparative light raids. "Much more will be done before the war is over," says the narrative.

"MEANWHILE AT THE STATION, the positions of the raiding aircraft are now being plotted. . . . They plot results as they come in. These are recorded on boards. . . ."

Below—**ON THE CONTROL TOWER OF THE STATION they await the first sign of the returning aircraft**





IN THE CONTROL ROOM OF THE STATION, Officers—a plan of the lighting and runways before them—direct landing operations

THE AMERICAN ARMY LANDS IN ICELAND: Official Pictures of the Arrival of the First U.S. Infantry Contingent

MAJOR-GENERAL C. H. BONESTEEL, in command of the American Force, with Major-General H. O. Curtis, in command of the British Forces, walk along the quayside. On the left is the British Air Officer Commanding in Iceland

AN AMERICAN SOLDIER IS GREETED BY A SCOT: A picture which reveals the differences in uniform and equipment between the U.S. and British forces

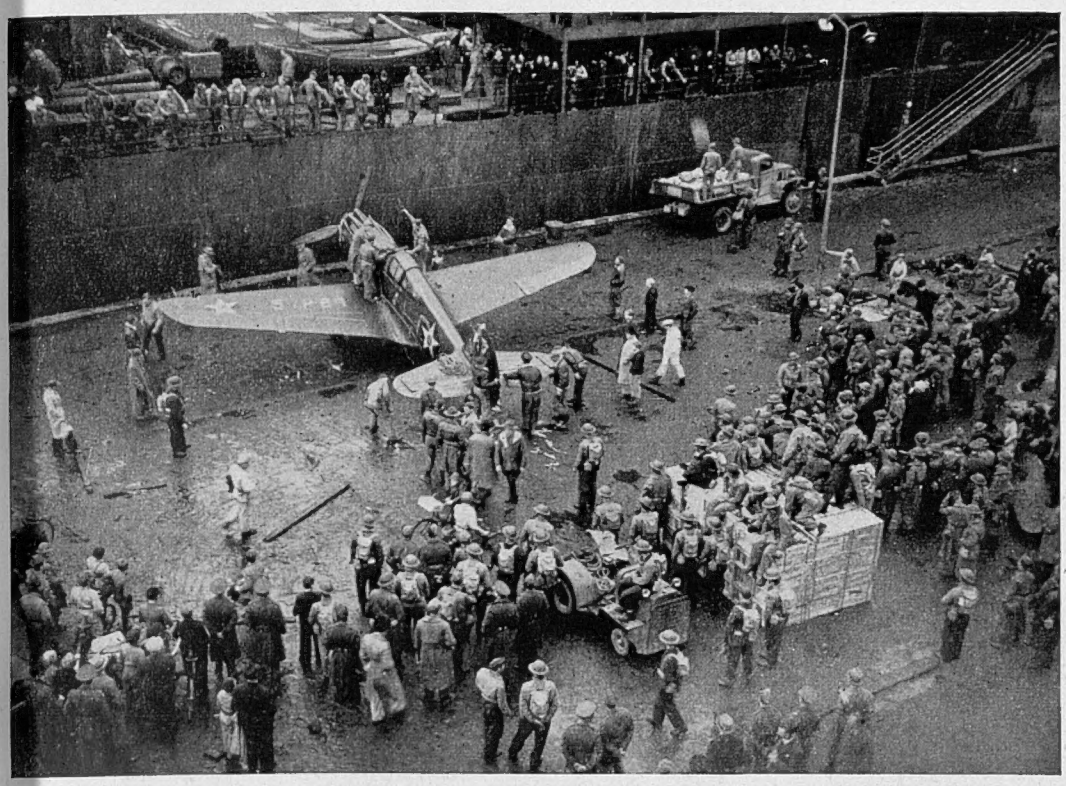
The first contingent of American infantry has now arrived in Iceland, to share in the occupation with the British forces already there. Under the command of Major-General Bonesteel (a veteran of the last war, when he served as a Major with the U.S. Seventh Division), the force comprises some of the United States' finest troops. With them they brought immense quantities of supplies of every conceivable kind—lorries, cars, artillery, anti-tank guns, aircraft, to say nothing of provisions and clothing!

All the unloading was done by the Americans; and as more troops came ashore they were moved into the Nissen-hut camps built by the British. The latter are going under canvas for the time being, until the Americans have built similar camps for themselves.

Soon after his arrival General Bonesteel made the following comment: "We are here on hard, serious business; our immediate task is to get set as quickly as possible, and then to tie up with the British forces and United States marines on combined exercises and manœuvres."

HOW THE U.S. INFANTRY CAME ASHORE: In tenders from the t ports. These vessels are of American design and constru and differ materially from those of our own forces

U.S. INFANTRY CLIMBING FROM THEIR TENDERS UP TO THE QUAYSIDE: This newly equipped includes Infantry, Artillerymen, and Pilots and Ground Crews of the Air Force. The Ame did their own unloading, and then went straight into Nissen-hut camps which formerly been occupied by the British forces



AMERICAN FIGHTER PLANES BEING UNLOADED FROM THE BIG TRANSPORTS : Note the American markings on wings and fuselage

AN IMPROMPTU MEAL ON THE DOCKSIDE for the new arrivals from the U.S. soon after their landing in Iceland

MUD ! An American Army officer makes his way through the camp, the roads of which have been churned up already

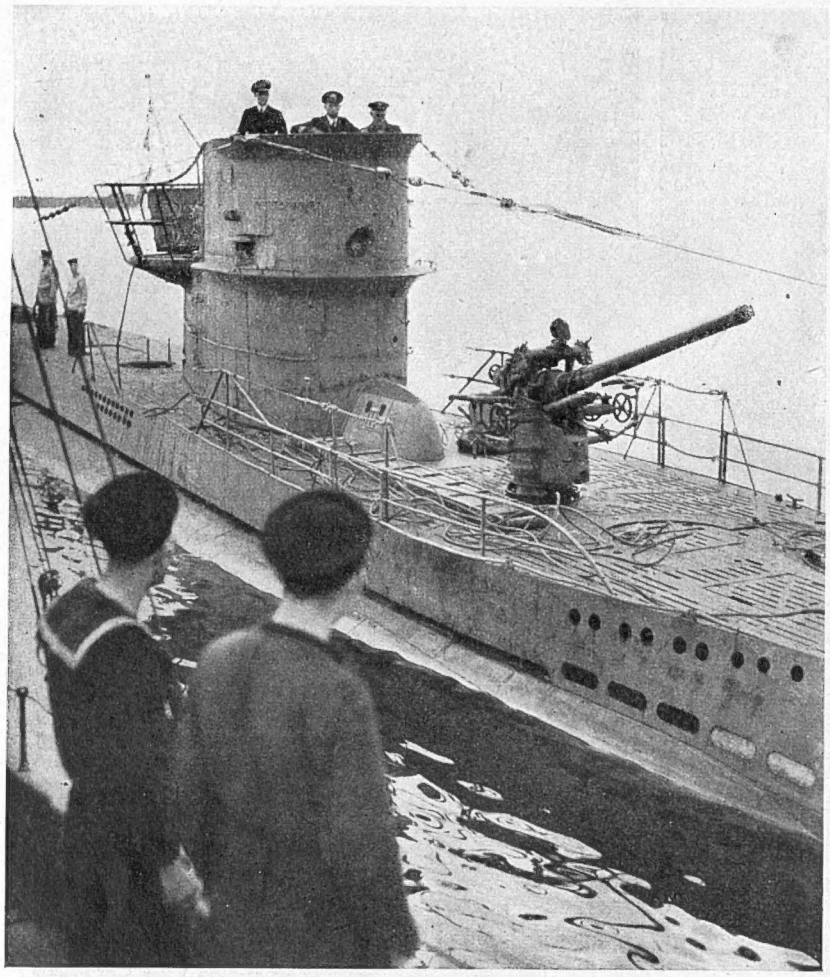
SUPPLIES BEING LOWERED : The Americans have brought planes, tanks, guns of all descriptions and long lines of transport vehicles. The quays were soon piled high with their equipment and food

A BRITISH STAFF OFFICER AS THE CENTRE OF INTEREST : The attractive Icelandic children take the greatest interest in all military matters on their island : and they turned out in full force for this newest excitement, soon chumming up with the troops from the U.S.

THE CAMPS IN WHICH THE TROOPS WILL LIVE DURING THE WINTER : U.S. soldiers are here unpacking their kit and resting in their Nissen-hut billets after the ocean crossing. The huts will provide warm quarters during the long and trying Icelandic winter

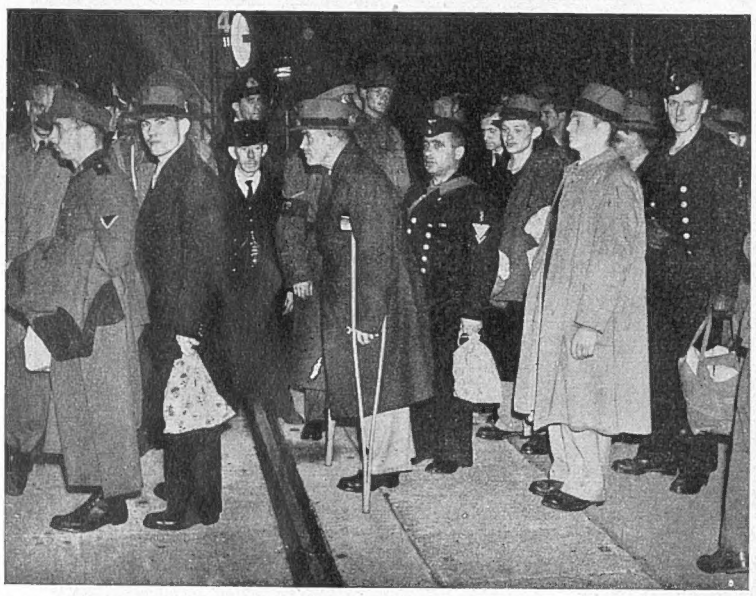
A GERMAN U-BOAT flies the WHITE ENSIGN

The Repatriation of Wounded German Prisoners ; and the R.A.F. Defenders of the Island of Malta

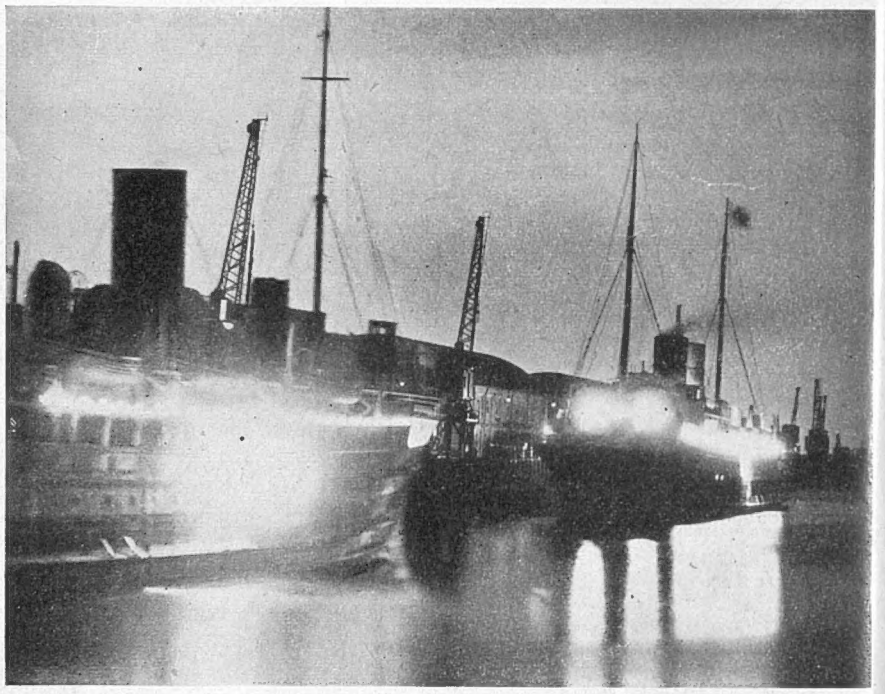


THE FIRST INTACT GERMAN PRIZE OF THE WAR : The U-570, captured last month by a Hudson aircraft of the R.A.F. Coastal Command, is brought safely into a British harbour

LIEUT. GEORGE COLVIN (WITH BEARD) AND MEMBERS OF HIS CREW in the conning tower of the U-570, from which now flies the White Ensign : Last month a Hudson bomber of the Coastal Command R.A.F. encountered a submarine of the German Navy : when she went in to the attack, the terrified crew panicked—with the result that the U-boat was captured intact. She has now been brought into a British port for a minute examination by Naval experts. The submarine is fairly new and was specially built for the purpose of attacking convoys. The man who brought her into port was Lieut. George Colvin, who was formerly in command of the submarine *Sunfish*



THE EXCHANGE OF GERMAN AND BRITISH PRISONERS OF WAR : Some in uniform, some in civilian clothes, the Germans go aboard the hospital ship "Dinard"



THE TWO BRITISH HOSPITAL SHIPS, brilliantly illuminated, lying in Newhaven Harbour last week-end : Last week-end plans had been completed for the exchange of many hundreds of German and British prisoners : these were men who had all been seriously wounded and were unfit for further service. At the last minute a hitch occurred, and the two British hospital ships, lying at Newhaven, did not sail according to schedule. They had been lying at the quayside with all lights on, when the blazing lamps were extinguished, whilst further negotiations took place

TWO OF THE R.A.F. FIGHTER PILOTS WHO HAVE BEEN TAKING PART IN THE MANY AIR BATTLES OVER MALTA

THREE SERGEANT-PILOTS OF THE MALTA FIGHTER SQUADRON : These are the first pictures to be released of some of the R.A.F. pilots who are fighting the Battle of Malta. The island has withstood hundreds of attacks, and has now begun to hit back—and in no uncertain fashion, as the Italians have already experienced

A SCENE IN THE NORWEGIAN FIORDS: A Nazi patrol launch (or Raumboote) machine-guns a fishing craft suspected of having escapees from the German tyranny aboard. The Nazis are reported to be shooting recklessly at any boat outside the officially prescribed fishing waters of Norway

FREEDOM IN SIGHT! Fourteen Norwegian children (all in their teens) make their escape from Nazidom in a 35-metre fishing-boat: their encounter with a British patrol vessel, which then escorted them to a port on the east coast of Scotland

ESCAPE FROM THE NAZIS

Two Incidents in the Wave of Revolt which is Now Sweeping Occupied Europe

—Drawings by William McDowell

Upper picture—So great is the rising tide of revolt throughout Occupied Europe against the Nazi tyranny that almost every day fresh attempts to escape are being made. In Norway Nazi naval patrols are reported to be shooting recklessly at any boats which are seen sailing outside the officially prescribed fishing waters. Recently they have even fired on boats in the permitted zone and a number have been hit. German bombing planes have also been employed in the same pursuit, and boats in which Norwegians were attempting to escape have been hit and sunk. Despite all their precautions, escapes—by sea and by land—are continuous

Lower picture—Thirteen Norwegian boys and a girl, all still in their teens, have just landed safely in Britain after a voyage of six days across the North Sea. The escape was made in a 35-metre fishing-boat equipped with Diesel engines. For the last three days of the trip they lived solely on black bread and water. The latter part of their journey they travelled under the escort of a British patrol vessel which found them in the North Sea and then accompanied them to a port on the Scottish east coast. The skipper of the fishing-boat was the youngest of the party, only sixteen years of age: the girl had been a hospital nurse in Norway

b

1.—THE LIGHT CRUISER TANKS FROM THE UNITED STATES: The new M.3 now arriving in the Western Desert in growing numbers. The speed and toughness of these new machines are considerable, despite their seeming lightness

2.—"THE REAL TANKS OF THE FUTURE": The British-designed and British-made Valentines, known officially as the Mark III. These are the machines which will have to support the Army in combat against the Nazi Panzer Divisions

3.—THE NEW COVENANTER CRUISER TANK: "Big, strong, but also with a high turn of speed and manœuvrability, as well as the capacity to cover long distances." This tank is a development of the light cruiser used by our forces in the Western Desert, and is equipped with similar armoured discs to the driving wheels

THE TANKS THAT WILL WIN THIS WA

How the Design of the New Types Fits into To-morrow's Strategical and Tactical Schemes

ALL of us have heard of, many of us ha seen some of the new types of ta that are being produced in increasing nu bers by our factories. What is the strategi and tactical pattern into which they a designed to fit?

1.—That appearances are deceptive, even in the tank-world, is demonstrated by this picture of the new M.3 light cruiser tanks which are arriving from America in increasing numbers. The machine looks spidery and small. It is; but combines with those qualities an amazing toughness and high turn of speed. One of them was recently given a gruelling test over 3,000 continuous miles of rough country, and was in perfect condition at the end. It is believed to be as fast as anything the Germans have, and is designed for "spearhead," cavalry work and reconnaissance. The machine is not to be confused with the American M.3 Medium, that great 28-tonner which will make such a difference on the main battlefield one day

The Imperial General Staff has th main tasks on land: (1) to defend Britai (2) to consolidate and improve our positi in the Middle East, while affording help Russia; and (3) to mount a Europe offensive against the enemy. Differe weapons are needed for each strate although many are interchangeable.

Thus, the light cruiser tanks of the M kind, which the United States is now p ducing in large numbers, are presumab being shipped directly to the Middle Ea where they have already (we hope) help us to regain superiority in mechanised uni

2.—The Valentine is the real tank of the future. Perhaps it represents the pinnacle of tank design to date. Although weighing 16 tons, with heavy armour, and a two-pounder gun capable of piercing all the known German tanks, as well as a Bes gun (sticking out beside the big one), and a crew of three men, the Valentine is very manœuvrable, and capable of more tha 15 miles per hour. Valentines are infantry tanks, and may well come to be regarded as the most deadly fighting machine ever devised. The curious, armadillo-like plating at the back, by the way, is special protection for the engine, and can be lifted up like a car's bonnet. The crew's entrance can be seen at the front just under the gun

These small and agile, but by no mea flimsy, machines, are particularly use for work in the wide open spaces, wh a premium is placed on speed and ma œuvrability. Isn't it they which have be responsible for many daring raids on German and Italian positions, darting in a out like Lawrence's Beduin cavalry?

But tanks of this kind, although th might prove invaluable to an army su as Marshal Budenny's on the south Russian front, would possibly be at a seri disadvantage in large-scale, frontal fighti For this purpose we have specially develop the famous Valentine.

Here is, perhaps, the best 16-ton hea infantry tank in the world, a vehicle dea in fire-power and invulnerable to m

3.—Described as an "armoured greyhound," the new Covenanter tank, now being produced at a rate four times higher than that of a few months ago, is a standard weapon of our growing armoured divisions. It represents what tank experts have been hankering after for years. Its fire-power has been described as "tremendous," but the guns are also an official secret, and it will be seen that they have not as yet been installed in the Covenanter of our photograph. The tank itself is, however, a development of the light cruiser used by our forces in the Western Desert, and is equipped with similar armoured discs to the driving wheels, a method that provides good protection without adding so much weight as complete side-plates

4.—FRENCH CANADIANS, RECENTLY ARRIVED IN GREAT BRITAIN, WITH THEIR WALTZING MATILDAS (so named by the Australians in the Western Desert). These big machines have been specially constructed to batter their way through any obstacle, whether it be fortification or enemy infantry formation

4.—These French-Canadian members of the Canadian Tank Corps, now assembled in this country, are justifiably proud of their new Waltzing Matilda heavy infantry tanks. The machine is of the type especially useful for smashing down fortifications, and making breaches through which lighter tanks and infantrymen can follow. Therefore it is provided with strong armoured protection, particularly for the tracks and driving-wheels. Without a high turn of speed and manœuvrability, the heavy infantry tanks are necessarily exposed to anti-tank fire at close range. But the Waltzing Matilda is every bit as strong as it looks, and that tough side-plating embodies more than one bitter lesson already learnt in this war

anti-tank weapons, but capable of moving forward gracefully, at a medium speed, over the roughest country. Its design incorporates many tactical lessons already learnt in this war. For instance, it is heavily armoured, as a glance at the curious design of the engine coping will show.

Many of our young infantrymen in training to-day will bless the Valentine for its protective powers in the hours of battle to come, as they will also acquire an affection for the great Waltzing Matilda, with its exceptionally heavy armoured protection at the sides. Advancing behind these will be like going to war under the lee of a moving fortress. The Russians will welcome them.

HERE IS ONE OF THE LATEST OF ALL TANKS: The Crusader or Mark VI. It weighs 15 tons, is armed with two-pounder Besa machine-guns and has a speed of 30 miles per hour. It is reported to be a very manœuvrable and handy armoured fighting vehicle

But we will not smash the German Army with infantry tanks. Only fast, immensely strong, armoured divisions will be able to do the preliminary work of cutting those grey hordes into neat pieces. Therefore such machines as the Covenanter, the Crusader and others (unnamed and unknown as yet) must be developed. They are big, they are strong, but also they have a high turn of speed and manœuvrability, as well as the capacity to cover long distances at a self-contained stretch. Headed by motor-cyclists and light armoured carriers, they will carry the war, with a real vengeance, right into the heart of the enemy armies.

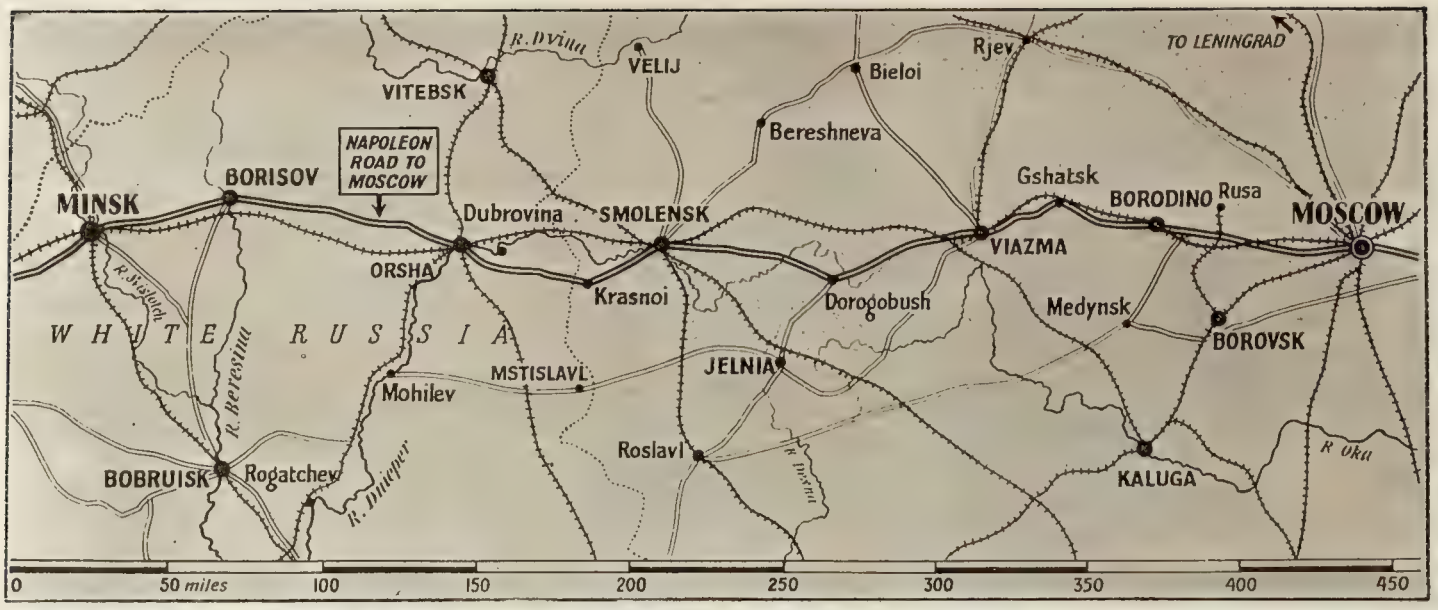
Mention has been made of other tanks. There is, for instance, the colossal Churchill, an infantry weapon proper, which is yet unexpectedly fast and agile. America is sending the M-3 medium, familiar for its rounded, armoured front, and claimed to be one of the most powerfully armed vehicles in the world. There are tanks which still exist in secret blue-print only. But it will be seen how wide is the range of design required to satisfy the insatiable demands of our new, many-sided Army. In the defence of Britain alone, special kinds of tanks are needed, notably those combining speed with heavy armament and fire-power. Lumbering infantry models would be of little use to repel an invader. Eventually, however, the prospect will become clearer, and then all kinds of tanks will coalesce into the final, metallic death-blow

D. C.

***On left*—AN IMPRESSIVE SPECTACLE IN THE MIDLANDS: A general view of hundreds of Crusaders in the course of assembly at a Ministry of Supply Factory in the Midlands**

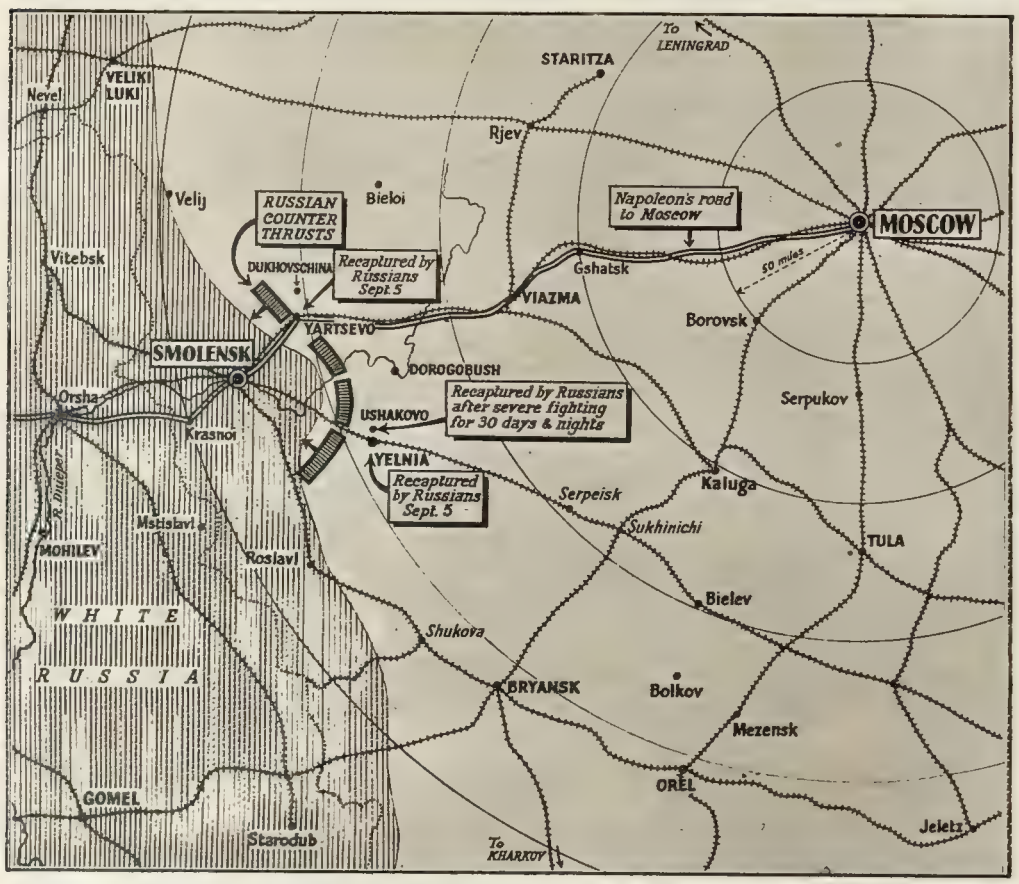
THE BATTLE FOR SMOLENSK

Special "Sphere" Maps and Drawings to Illustrate the Position in this Central Sector, where the Germans have been Driven Back on a Wide Front



THE BIG MOTOR HIGHWAY FROM SMOLENSK TO MOSCOW; or, Why it is essential for the Russians to hold off the Germans in this region!

In a country where roads generally are of very poor quality, that running between Smolensk and Moscow is a first-class highway. Its possession has long been coveted by the Nazis for a direct frontal assault on the Russian capital; and at one time, isolated detachments were reported to have reached Dorogobush. The Germans were, however, driven back from this point, and the little town has since been savagely attacked from the air and completely destroyed

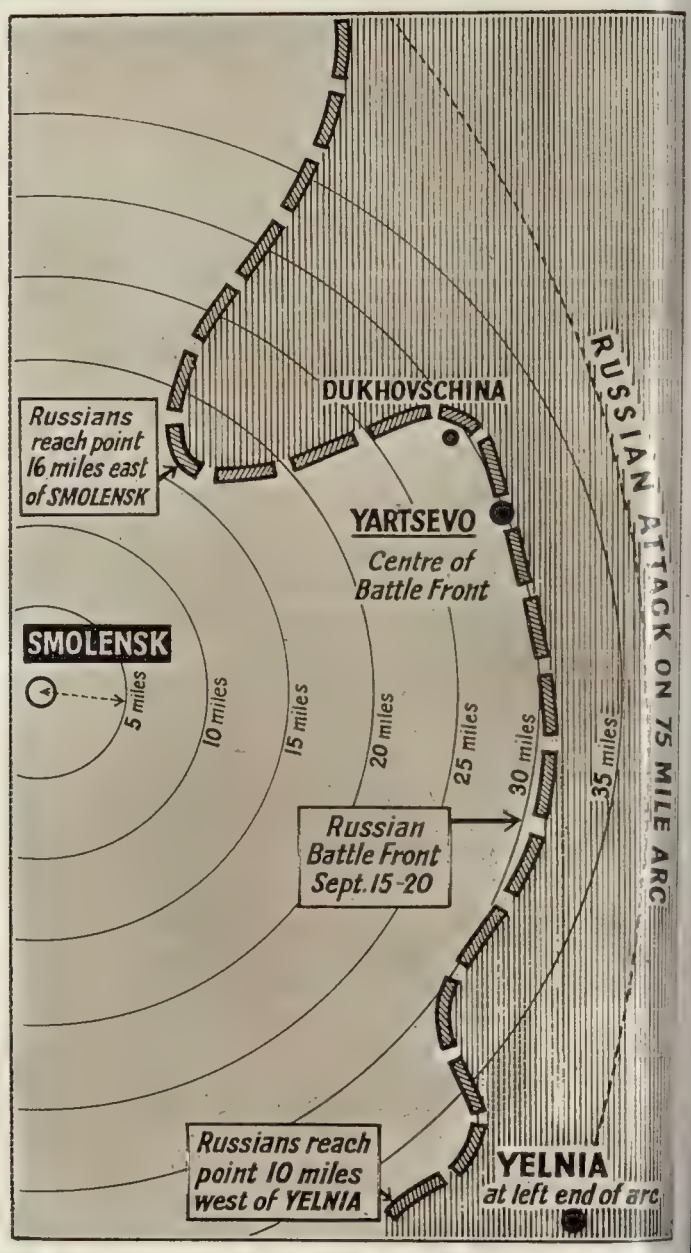


A KEY MAP OF THE YELNIA-YARTSEVO FRONT, where the Russians have been counter-attacking

This map is marked in 50-mile circles from Moscow; it shows that nowhere are the enemy nearer than 200 miles to the capital. The farthest point east reached by the Germans was Dorogobush; and at one time strong attacks were directed towards Viazma and Bryansk. Timoshenko, however, in his push towards Smolensk, has now recaptured Yelnia (on September 5), Ushakovo (after 30 days and nights of severe fighting), and Yartsevo. Pressure is being exerted now both to the north-east and south-east of Smolensk

THE FIRST DEFINITELY REOCCUPIED TERRITORY IN THE RUSSO-GERMAN WAR ZONE—*Drawing by Percy Home*

The area round Yelnia has a special interest—this is the first piece of territory to be definitely captured and reoccupied by Russian troops. The situation has allowed the military authorities to authorise visits from the British correspondents, who have thus been able to see at first hand something of the conditions under which the present fighting is being waged. Recaptured German trenches were entered—they were not considered to be any better than the Russian—neither side has developed anything but very slight communication trenches



THE RECAPTURED GROUND IN FRONT OF SMOLENSK—the first area in the present war to be wrested back from the Germans:

In the period under review here the Russian counter-offensive before Smolensk took them to within sixteen miles of the centre of that city. This was in the Dukhovschina sector. With Yartsevo as the Russian centre, our Allies have been pushing forward throughout the whole of this battle-front. The area now reoccupied is the first to be wrested back from the enemy since the opening of the war

IN the Smolensk sector the Russians have achieved their first big successes in counter-attack against the Germans. For the first time in this war, too, the enemy has been forced to yield up territory into which he has advanced!

Recently, a small party of correspondents were allowed to visit the sector and to record their impressions. Mr. A. T Cholerton, well-known correspondent of the *Daily Telegraph*, sent back two excellent reports, during the course of which he recorded that Yelnia was retaken on September 5 after bloody fighting which had lasted since July 29. In this sector alone the Russians smashed up at least eight German divisions, advancing 17 miles to a point 10 miles west of this small burnt-out town. "The centre of this battle-front," wrote Mr. Cholerton, "lies opposite the village of Yartsevo, on the main Moscow-Smolensk road, 30 miles east of Smolensk. It then curves sharply north-westwards almost to the village of Dukhovschina. . . .

Yelnia is on the southern corner of the Smolensk bulge. In the bloodiest single battle of the whole war, raging almost incessantly from July 29 to September 5, the Red Army first smashed the tip of the German spearhead, and then, by a flank attack from both sides, squeezed and strangled the Yelnia salient in two main

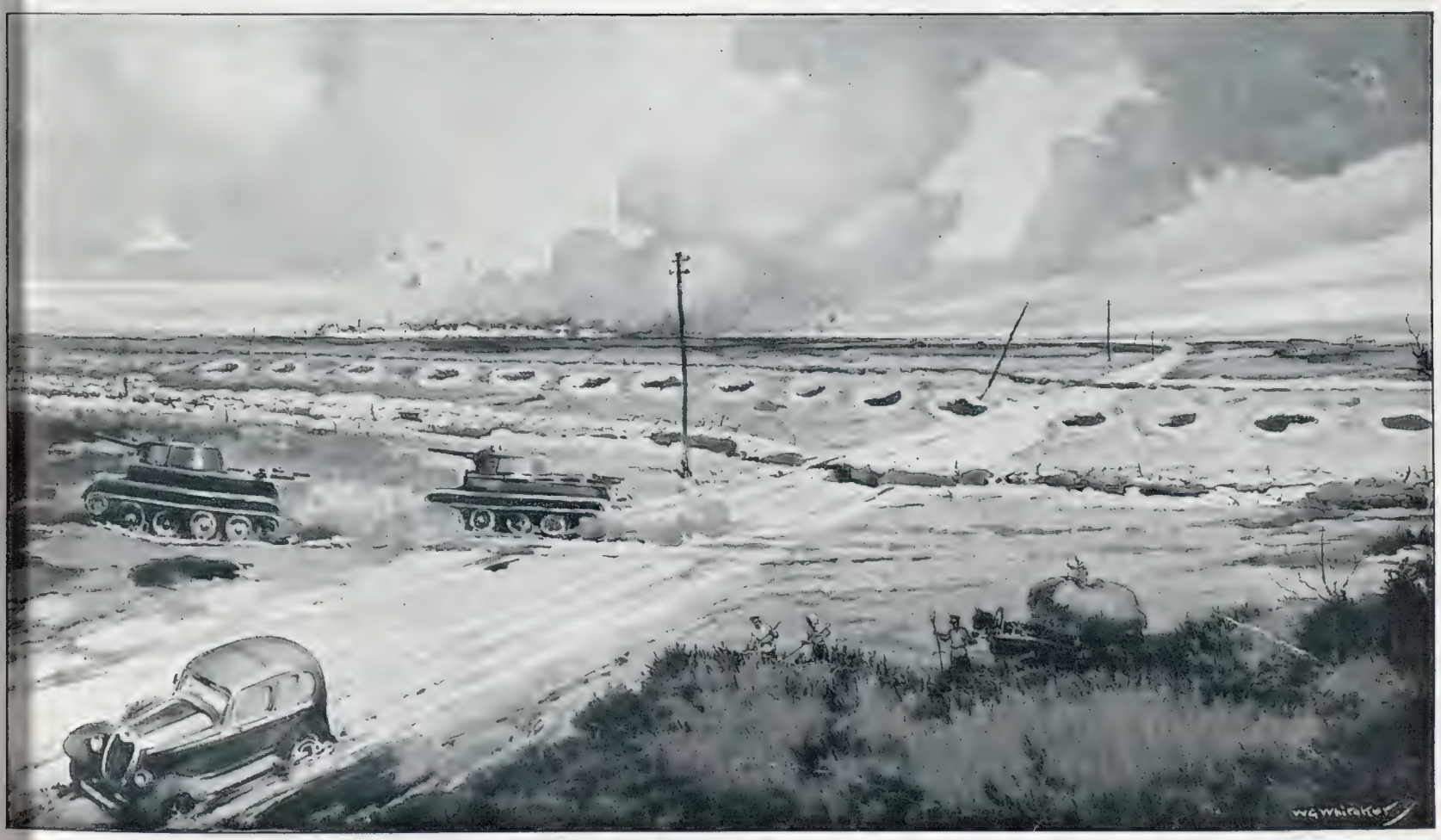
IN THE GREAT BATTLE BEFORE SMOLENSK : A formation of Russian tanks being launched against the German positions from the shelter of a forest belt—*Drawing by W. G. Whitaker*

"It must be borne in mind," writes Mr. A. T. Cholerton after a personal tour of the Smolensk battleground, "that this Russian front is too long for any continuous trench-line to be possible. Enemy attacks on this front were usually stopped by sudden counter-blows from the flanking woods. Russian attacks, too, are usually launched against the enemy's flanks from the forests." This is the subject of Mr. Whitaker's drawing above—the launching of a Russian attack by tanks emerging from a road cut through the forest

operations. Early on September 5, the Russians swept triumphantly into the blazing town and then drove the enemy another 7 miles. Altogether 17 miles of ground was retaken in depth; 16 miles north of Yelnia lies the village of Yartsevo. It is just inside the northern corner of what has been called the "Yelnia hernia," and for five weeks it formed a bastion position for the Russian pincer movements that have now liquidated it. The Battle of Yartsevo, by which this was achieved, formed part of the general plan of action to strangle the salient, but it was an isolated engagement, and, in its way, a decisive one too. Flanked by forest and with that rise in the middle, this Yartsevo field was just as much an inevitable natural battlefield as was Waterloo. Yartsevo village, which was slightly below the centre of the German line, had first been blasted to bits by Russian gunfire and bombing.

This battle lasted five weeks. First stemming the *Blitz*, the Russians dug shallow, makeshift frontal trenches, and then sapped slowly forward to the flanks, supported by their magnificent artillery firing from the forest edge. As you move on, you see the trenches getting deeper.

Mr. Cholerton thought the Russian trenches better planned than the German ones, but they are never very elaborate. Neither side had communication trenches going right back to cover, and so relief must have been a dangerous business in the short, pale August nights. When on September 5 the Russians finally stormed the entire position—the Germans had four trench-lines—great masses of infantry swept at dawn out of the forest and, making use of their advanced lateral saps, crashed into the German position on both flanks in a grand, classical bayonet- and hand-grenade charge. This battle was largely won, however, by the strength and greater accuracy of the Russian gunfire. For instance, a curtain barrage was put down in front of the German fourth-line trenches to check supports reaching the forward lines: shell-craters in perfect alignment, just where they were wanted.



A DEMONSTRATION OF THE AMAZING ACCURACY OF THE RUSSIAN ARTILLERY : The astonishing barrage fire in front of the German second-line trenches during a grand assault by our Allies—*Drawing by W. G. Whitaker*

"What impresses me most," writes Mr. Cholerton, "is the Russian artillery. This was ever her finest arm, and the great tradition is fully maintained. Moreover, in contrast with the position in the last war, the Russians have still got masses of it. . . . My opinion is based on the actual results of the Russian gunnery I saw on the stricken fields behind the line. There the rows of craters bore witness to the astonishingly accurate barrage fire in front of the German second-line trenches which prevented the enemy sending up support to the front line during the Russian bayonet attacks. Evidently, too, the range-finding on enemy battery positions concealed behind bluffs had been excellent"

WHAT IS GOING ON

THE MAN WHO IS PLAYING HITLER'S GAME IN VICHY : Admiral Darlan (on right) is just over sixty years of age. At the outbreak of war he was pro-British—very much so !—and had become a Grand Commander of the Victorian Order (G.C.V.O.) in 1938 : it is said that the incident at Dakar converted him to a pro-German attitude. After many vicissitudes, this ambitious sailor-politician holds considerable power amongst the careerists of Vichy ; yet it is said that he is now disliked throughout Unoccupied France as much as Laval ! With him in this picture is Commandant Jean Fontaine, his aide-de-camp

THE AGED MARSHAL WHO ETERNALLY TALKS OF "HONOUR": Marshal Philippe Pétain is over eighty-five years of age. Beginning the last war a Brigadier-General, he achieved fame for his defence of Verdun in 1916 a became a French National Hero when over sixty. To-day he holds the dest of France in his shaky hands. The picture above was taken recently at Vic during the Grand Prix which he attended : on the Marshal's left is Gene Brecard, Grand Chancellor of the Legion of Honour ; Admiral William Leahy, t U.S. Ambassador to Vichy, and M. de Beauverger, Chief of Protocol (extreme r

SO long as my wireless set holds out I shall not be without news from home, but I must say I prefer my own news of France straight, as they say in the U.S.A. The B.B.C. and the Ministry of Information, perforce one presumes, obtain their information by the grapevine route ; some of it is accurate, but a good deal airy wishful thinking. Often I hear my own good friends and colleagues of other days speaking over the ether, giving the world stories about

BEFORE THE ATTEMPT ON THE LIVES OF LAVAL AND DEAT : On August 27 Pierre Laval, leader of the pro-Germans in France, was present at the registration of French Volunteers to fight against Russia. With him was Marcel Deat (on the left, in the uniform of the "French Legion"), former Communist and now a leading pro-Nazi. A young Frenchman suddenly opened fire on the two traitors : Laval was seriously injured and for a time it was thought he would die. Despite serious injuries the French Quisling recovered ; although his companion, Deat, whose injuries were at first thought to be the less severe, has since succumbed

France, but they tell of a France that existed perhaps once upon a time, before the blow fell. A few weeks ago, for instance, I heard a colleague say Paris was now in the "free zone," but Paris is still very much occupied. No doubt Parisians wish my friend had been right. I heard another good friend, an American this time, say Admiral Darlan's photographs were printed in the fifth column of the newspapers in non-occupied France. A marvellous idea, but unfortunately not true.

Let us make a brief tour of the forty-six departments of France which are not physically occupied by the Germans. The Nazification of these departments, or counties, is fairly slow, but very sure. To say there is any open hostility to the late enemy is 100 per cent. incorrect. On the whole, there is complete apathy ; say 50 per cent. of the population want the war to be over as quickly as possible, not caring which side wins. Of the remainder, about 40 per cent. want England to win ; the remaining 10 per cent. are on the side of the Germans, and there are many reasons why these people feel that way, but for the moment we will not discuss politics. The real tragedy is lack of unbiased news. The Germans have taken all precautions to see that news does not reach the French people. Newspapers have instructions that nothing favourable to Germany's enemies must appear in newspaper headlines ; the German official communiqués must have pride of place ; then the Italian ; then the British.

No picture of aerial damage to Germany or German-occupied countries may appear, but free rein is given to damage inflicted by German or Italian planes. The German Press censorship is indirect, in the sense that it is carried out by French officials, but it is none the less very severe. The former French official news agency, Havas, is called a Franco-German consortium, but it is in point of fact controlled by two French directors and four Germans, with headquarters in the Hotel Lutetia, Boulevard Raspail, Paris. French wireless is equally well controlled.

Despite these controls, the morale of the section of the French public desiring the victory of Britain remains high. In my wanderings I frequently find scribbled on walls "*Vive le* R.A.F." and similar slogans, but it is well to make it clear that these things are on a very moderate scale. On the other hand, the Government of Vichy allows the French Legion, the Fascist organisation which has replaced the ex-Servicemen's Association, to post up bitter anti-British attacks, and abuse of the Jews. Sometimes the attacks are united, as, for instance, this slogan : "Backing de Gaulle means playing the game of the Jews."

AFTER THE ATTEMPT : Pierre Laval, French Quisling-in-chief, is led away after having been seriously injured

What do French people talk about ? The talk about food, or, rather, the lack of it ; the talk about that all day long. Vichy has long since abandoned the story of the British blockade starving "pregnant women, wounded soldiers and little children." They are faced now with the naked

THE MAN WHO FIRED THE SHOT: Paul Colette, aged twenty-nine, be led away by the police after hav attempted the assassination of La He is—of course !—described by t Germans as a "Communist," altho this has not yet been substantia Colette is now in prison awaiting trial : he has become a National He throughout France !

truth : the lack of foodstuffs is d to what is known as the Germ "priority of purchase," and t lack of French organisation. have been frequently in Marse and with my own eyes have s quantities of foodstuffs arrivi despite the alleged British blockad but the Germans take 60 per ce of all foodstuffs arriving in t great Mediterranean port.

Admiral Darlan will tell the Germans requisition nothing non-occupied France. He is q right ; that is where "priority purchase" comes in. When t Germans want something, anythi they tell the French "*Intendan* military supply. The Germ pay with bonds. More scrap paper.

The shortage of food is m acute along the French coast the Mediterranean and is wo in the Alpes Maritimes departm the famous French Riviera. It best in the Savoie and the Is but it is by no means bad many other departments ; m

IN VICHY FRANCE

A True and Unvarnished Story of Conditions To-day in Unoccupied France, Told by a Well-known British Journalist who was Unable to Leave That Country After the Surrender

restaurants serve meat on meatless days, because, if they did not, the meat would go bad. In one county there is no meat, and next door, too much. Lack of distribution organisation. This morning I had a letter from a French friend in Marseilles. He writes: "There is no food in the markets; latterly there have been no tomatoes, no fruit and no vegetables, no salads and no marrows. Yesterday my wife wasted an hour and a half looking for and queueing up for a chickory salad."

An hour after reading that letter I walked through the market in Grenoble. Millions of tomatoes, salads, masses of fresh fruit; hundreds of sacks of potatoes. Yet, a few hundred miles away, there is nothing to eat.

People find difficulty in obtaining soap; most people try and make it themselves; the public libraries are full of men and women reading up soap-making formulas. A favourite method is to go to a church and buy a taper from the verger; on the way home they pick laurel leaves, melt down the candle and mix it with the leaves, and boil the mixture. Unless you take soap with you when you take your dirty linen to the laundry, the washerwoman refuses to do her job. It is no use sending someone with the parcel,

BREADLINES HAVE MADE THEIR APPEARANCE IN UNOCCUPIED FRANCE: This picture comes from Grenoble, the city to which the author of the accompanying article pays special attention. It shows the distribution of food to needy families of that city "in accordance with the Vichy programme of National Aid"

THE INFLUENCE OF THE NAZIS ON VICHY: These two gentlemen are officers of the newly-created Vichy State Police Their smart black uniforms look as if they might have been designed in Berlin: a symptom of the way in which the Pétain-Darlan Government are determined to copy the men with whom they so ardently desire to "collaborate"!

because ten to one you will see neither soap nor linen again. One sees people tramping the street with boots and shoes, looking for a shoe-repair shop which does not carry a sign: "Closed through lack of materials." When you do find a shop with materials, you have to wait six weeks or two months for the job to be done.

It is no use going to the chemist to get a prescription "made up" unless you take an empty bottle with you; no use going to the wineshop for your weekly ration of a litre of wine without a bottle Your cigarette ration is two cigarettes per day.

The food shortage is helping with the "Fascistising" of France. As in Italy and Germany and the other countries that modelled their constitutions on Fascism, the new France begins with Youth. There are two organisations, the "Companions of France" and the "Youth Camps." The former is the nursery for the latter.

The bait for recruits, for, so far, enlistment is voluntary, is plenty of good food, two packets of cigarettes per day, and a daily litre of wine. The Fascist Youth wear green uniforms and green berets, white gloves and white socks. I saw 1,000 march yesterday, and very fine they looked. "Ah!" whispered a woman, "if we had had those *before* the war, perhaps we shouldn't have been beaten."

In the big cities of non-occupied France one sees many Germans in uniform, but the Italians deem it preferable to go about in mufti, and how right they are! So far as I know, the French Youth have no politics, but the next class, the French Legion, are 75 per cent. Fascist. The Legion goes in for "strong arm" methods, *à la* Mussolini and Hitler.

Recently in Lyons I had a very good opportunity of seeing how this famous "collaboration" is working out. Germany brings pressure to bear on Vichy by withholding raw materials except for the factories working on articles needed by Germany for the purpose of beating Britain—I am referring now to factories in non-occupied France only. I have in mind a factory at this moment working on the making of a pipe-line for Rumanian oil. In the same neighbourhood is a factory famed for its output of the finest silk goods. For the pipe-line, Germany has provided the coal and the metal. For the silk factory, where the looms have long been idle, Germany has made it buzz like a beehive, making parachutes for German troops.

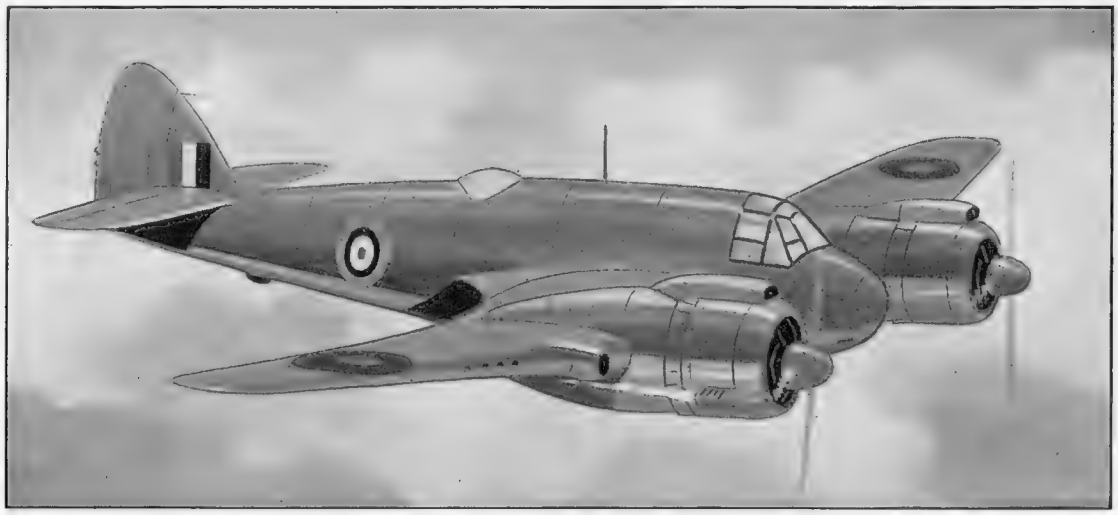
In other cities where they once made textiles, the skilled French workmen are reduced to working on a material made up of broken glass and fish-bones.

The gentleman who, on behalf of Hitler, is offering the French cities the choice of starvation or help for Germany, is, God save him, a Frenchman. His name is Fernand de Brinon. When I first met him he was a neighbour and a colleague of mine; he worked on the Paris financial newspaper *L'Information*. He then called himself "Comte" de Brinon. Maybe he is. I do not know. The last time I had the misfortune to meet him was in Vienna, in March 1938. He was still a journalist. We were both "covering" the rape of Austria. "What we have to do, *mon cher confrère*," he said to me, "is to impress on our readers that this is a holy crusade; that Austria is aching to join Germany."

What I said to him I do not think the Editor would print.

H. J. G.

FRENCH PRISONERS OF WAR FREED BY THE NAZIS ARRIVE BACK IN VICHY FRANCE: For the French Army, the war has long since ended: but the great bulk of its soldiers—some 2,000,000 of them—are still in prisoner-of-war camps in Germany. Recently a number of them were freed by the Nazis—but only the older of them!—and here they are being greeted by General Charles Huntziger, War Minister in the Vichy Government and leader of the French Armistice Delegation, on their arrival at a railway station near Lyons. So far, in his negotiations with the Pétain Administration, Hitler has been able to take great political advantage of his retention of the 2,000,000 young Frenchmen in his hands and has used them as pawns in his bargainings with Vichy

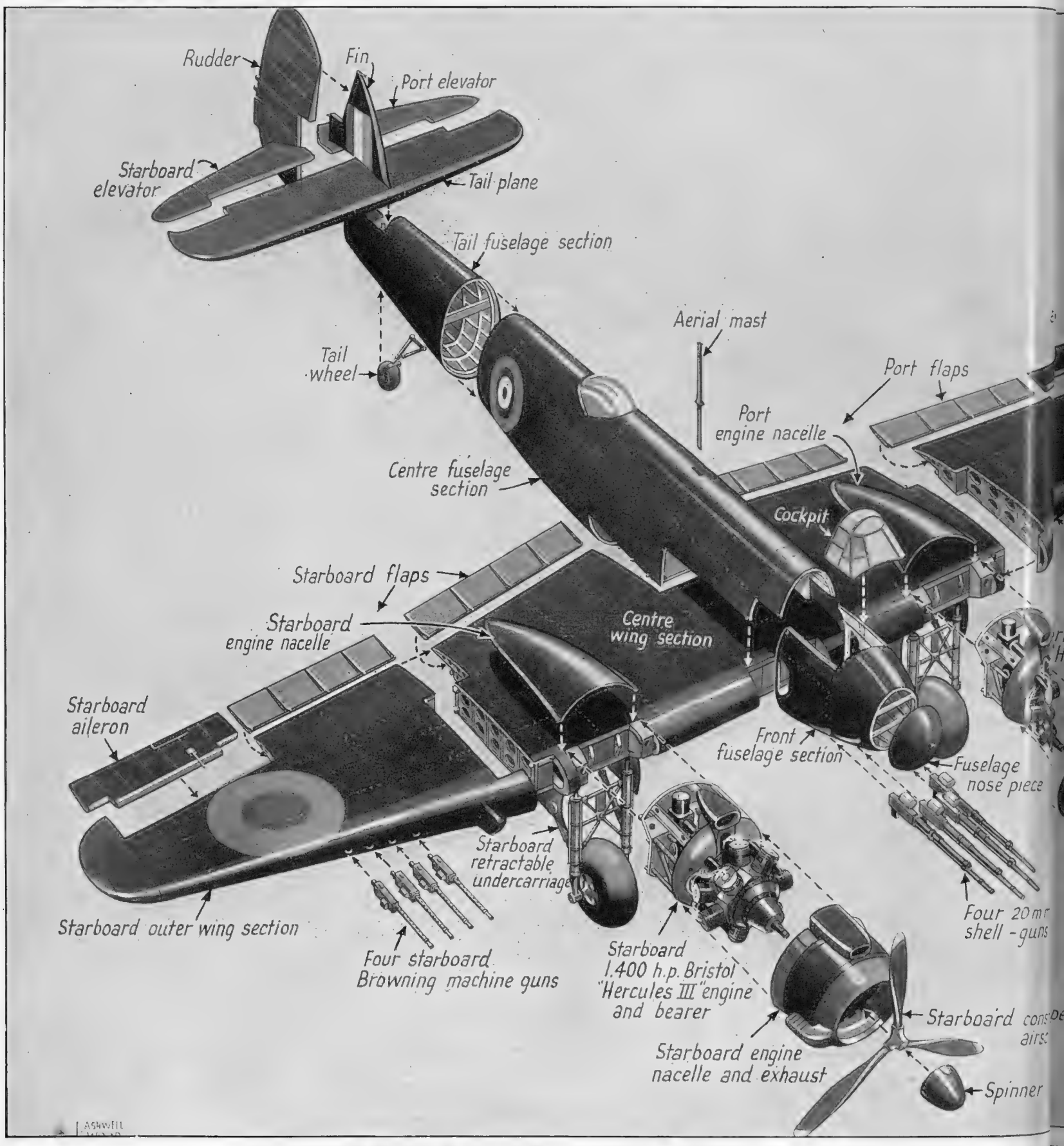


"DISPERSED MASS PROD-

The Method by which the Brist-

THE construction of the Beaufighter in secti- was designed for the purpose of outwitti- enemy bombers, both during the period of building and afterwards in the sky! It is the m- formidable fighter aircraft in the world to-day; two 1,400-h.p. Hercules engines give it a speed some 300 m.p.h., and it has a nominal range 1,500 miles.

***On left*—THE COMPLETED BEAUFIGHTER IN ITS D- FIGHTING WAR-PAINT:** The machine is here sho- with all the components portrayed in the draw- below in their respective places. The night-figh- version, painted all black, provides an almost invisi- opponent to any German raiders in the night



THE ALL-BLACK BRITISH NIGHT FIGHTER, THE BRISTOL BEAUFIGHTER, and how it is finally assembled—*A complete* -m-

This drawing shows the thirty-six main component parts of the new Beaufighter. Each part is made separately in different parts of the country, and then the results are brought together for final assembly. Of course, there are thousands of components, but those shown here are the main ones. The construction is greatly simplified for this purpose, and has for its principal aim a quantity production *plus* the fact that the bombing of any individual workshop would not bring production to a standstill. This was an achievement for which Lord Beaverbro- the most fewer tha- is painted

...ION": And How it is Achieved

...aufighter is Assembled in Sections

—Described and Illustrated by L. Ashwell Wood

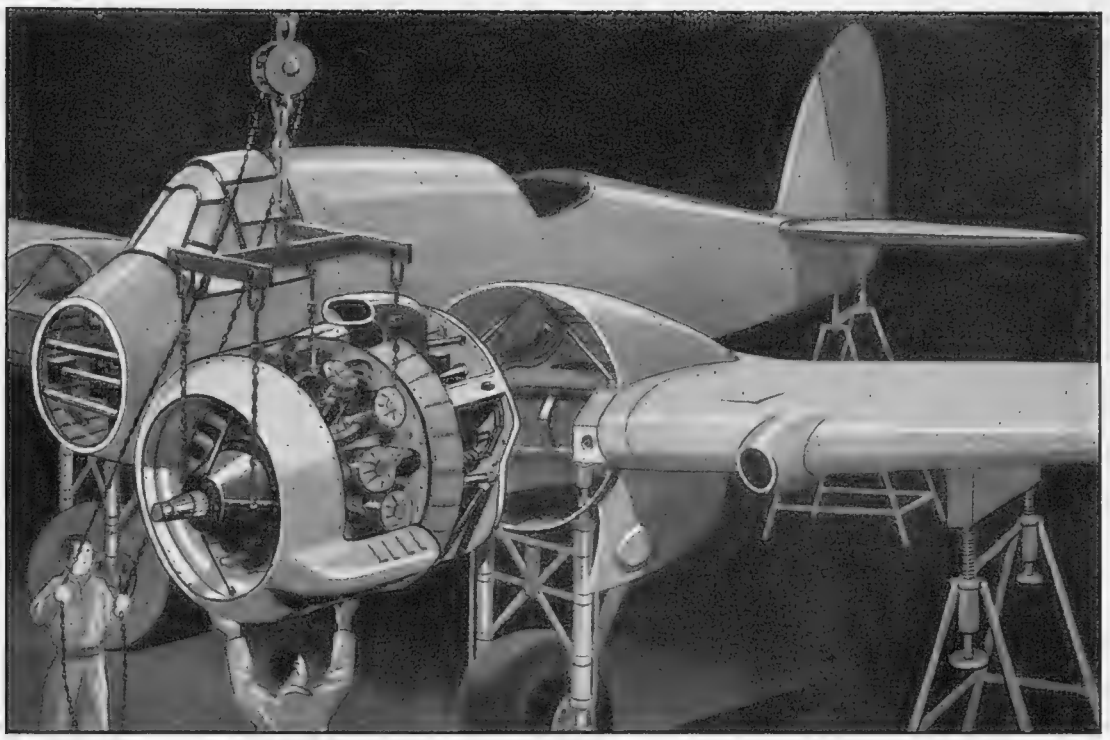
Designed for dispersal, the various component parts of this aircraft are sub-contracted to factories situated all over the country, thereby eliminating any hold-up due to enemy action. Each main component is constructed to a high degree of completion at its own factory before being sent to its final secret place of assembly. These parts are all connected by means of pin joints, and the sequence of building is simplicity itself, coupled with a meticulous accuracy which is amazing.

When the stern frames, tail plane, rudder and fin are completed, the stages of construction are as follows: Fitting up front and rear fuselages, setting out of central wing section; adding outer wing sections; the fitting of petrol tanks, undercarriages and fairings; adding complete engine units; all wiring and instruments fitted up and tested. A final comprehensive inspection is carried out, and the aircraft is then turned over to the dope shop.

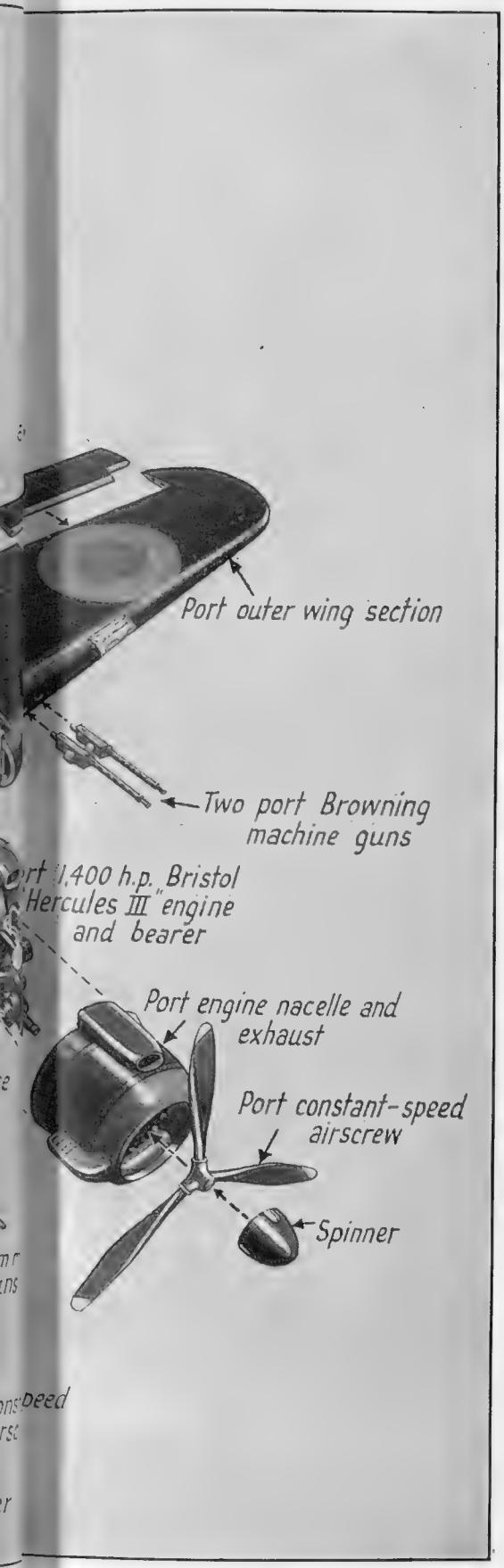
It should be added that all the control surfaces—rudder, ailerons, and elevators—are fabric-covered in order to facilitate the manœuvrability. After final inspection and test flights, the Beaufighter is then ready for the R.A.F.—and the enemy.

This aircraft is a fine example of what good design can achieve. Coupled with a high speed, the Beaufighter can carry a very useful load; pilots speak highly of its controls and their sweetness of action; and the crew's comfort has been carefully studied. The operational equipment carried is exceptionally complete; it includes oxygen apparatus, fire extinguishers, first-aid outfit, emergency rations and water bottles; the cabin has its own heating system, and there is a Lorenz beam-approach equipment. When used in the desert there is provision for a four-gallon water-tank.

THE "MONOCOQUE" METHOD OF CONSTRUCTION OF THE BEAUFIGHTER: The stringers and formers make up the skeleton of the fuselage and are set up in jigs: upon these is riveted the stressed skin outer covering. The edges of these plates are joggled together in order to present a smooth surface. In this form of design very little or no cross-bracing is required, the stresses being taken by the skin

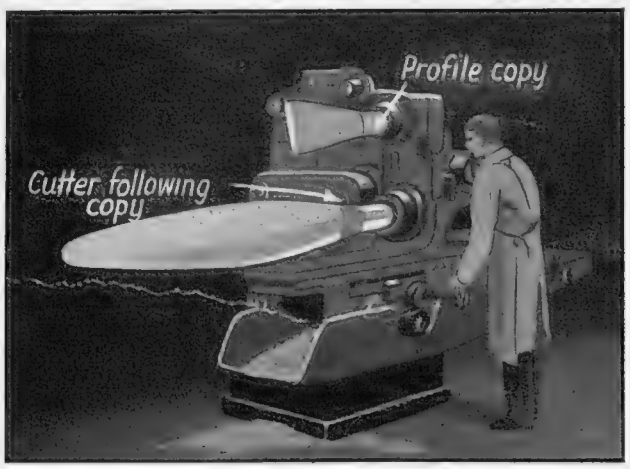


FITTING ONE OF THE TERRIFICALLY POWERFUL 1,400-H.P. BRISTOL "HERCULES III" Sleeve valve, air-cooled, fourteen-cylinder radial engines are fitted. After the fuselage is completed, the wings and undercarriage are added. Here the complete engine unit is being hoisted into position; the exhaust ring is attached, and the whole simply bolted down in a short space of time

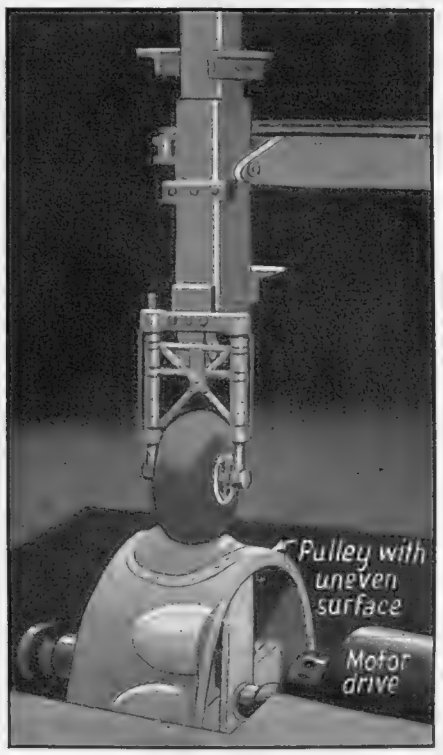


...matic exposition

...in large part, responsible. The Bristol Beaufighter is ...y-armed twin-engined fighter in the world: it has no ...nnon, and six machine-guns. The day-fighting version ...ent colours—as shown in the smaller drawing above



MACHINING A PROPELLER FOR THE BEAUFIGHTER: The hub end of the blade is placed on a profile-copying machine. The small blade above is the copy from which the lower blade is shaped, both describing the same arc in revolving. The lower blade is thus shaped according to the profile copy



TESTING THE UNDERCARRIAGE: The shock-absorbing legs of the retractable under carriage are here undergoing a rigid test. An uneven pulley imparts shocks similar to those incurred during an actual landing

BULGARIA ON THE BRINK

How the Tension has Grown Until Now She is no Longer a Free Agent, but Merely the Tool of the Nazis, Despite Her Close Ties with Slavdom

THE SITUATION IN BULGARIA TO-DAY : Troops massed along the frontier, and a river fleet in the Danube

Burgas and Varna are the two principal ports of the country, whence the Germans might attempt an invasion by sea of the Russian Crimea : small German naval craft have already been reported in adjacent waters. In the Danube, too, a great fleet of barges and motor-craft has been concentrated ready for whatever Hitler may decide.

It has been known for a long time that some 400,000 troops have been concentrated in Bulgaria, and doubtless we shall soon know their exact destination ! In the above map, the area unwillingly ceded to Bulgaria by Rumania in the Dobruja has been indicated to the north of the port of Varna

WORTHY SON OF A WORTHY FATHER! King Ferdinand of Bulgaria ("Foxy Ferdinand" as he was generally known) led his country into war with Germany, and paid for his folly with his throne. He abdicated in October 1918, when his country realised that Germany was falling. King Boris (above) succeeded his father : he, too, is leading his country into war—and again on Germany's side. It has been made abundantly clear to him that, in the event of an Allied victory, he, too, will probably suffer the same fate as his father. King Boris was born in 1894 ; his wife, Queen Joanna, is the fourth daughter of the King and Queen of Italy. The above picture was taken outside the Ritz Hotel, during their visit to London in 1937

HAVING become the tool of Germany, Bulgaria is expected at any moment to enter the war, either against Russia or Turkey, at Hitler's bidding. Up to the present time Bulgaria has congratulated herself upon being outside the conflict, not having declared war on anyone. She has gained coveted territory without fighting as a reward for the use of her country in the transmission of Nazi troops against her neighbours, Yugoslavia and Greece, with whom she was nominally at peace.

Ever since Bulgaria joined the Tripartite Pact she has been under the domination of Germany. At first there was considerable satisfaction in the country, a feeling that they were in union with the victorious side in the conflict and were therefore in safety. Moreover, there was the possession of territory handed over to them. But in May the Bulgarians began to realise that they were paying a price for their treachery. The Press became entirely controlled, only pro-Nazi sentiments were allowed. At the beginning of June the Greek islands of Samos and Samothrace were handed over to Bulgarian troops, while the Germans went to the Dodecanese. Turkey became alarmed and remonstrated, pointing out that Bulgaria had promised to take no advantage over the Balkan countries owing to war conditions. Conflict arose with Italy over the share of the booty taken from Yugoslavia and Greece, both of Hitler's satellites wanting the same districts for which they had rushed when the fighting was over. Hitler gave both claimants notice that they must wait for a more favourable moment for the final decision. Meanwhile the "Bulgarisation" of Macedonia was going on vigorously with Nazi approval.

When the Germans invaded Russia on June 22 the effect was immediately felt in Bulgaria, where the small naval ports of Varna and Burgas were taken over by the Germans, and much activity shown by German crews on the small pocket submarines brought down the Danube. Some German divisions departed for the north, after gathering all the supplies they could. Seafaring men, sailors and fishermen were persuaded to go as recruits to Germany to take vacant places in Hamburg, Kiel and Bremen, where it is increasingly difficult to supply German workers.

Reports from Bulgaria during July showed a growing resentment at the behaviour of the German troops, who had plenty of money, using new notes turned out for them by the press of the National Bank. German troops continued to pour into Bulgaria, pleading necessity for guarding the coast against a Russian landing. In mid-July eighteen Bulgarian divisions were called up, ready for use as demanded, but bringing considerable distress, as men were obliged to leave just when the harvest was demanding all workers. The troops were concentrated near the Turkish frontier, somewhat of a menace to Turkey, who, however, continued calm, professing a belief that Germany could not be thinking of adding another war while occupied with Russia. Besides, eighteen divisions were not enough to threaten the security of the Straits. In Macedonia a shifting of population was taking place, turning out Greeks from Thrace and part of Macedonia, with the intention of making the whole area between the Vardar and the Maritza into a solid bloc of Bulgars. The Bulgarian Government is extremely active in taking full possession of the newly-acquired region, to prove their rights by a strong hold upon the land. They are putting into practice once again their old methods of intimidation and cruelty, forcing all Greek children into Bulgarian schools, all with the motive of transforming their portion of Macedonia into a semblance of a real Bulgaria.

Mr. Eden spoke stern words on Bulgaria's actions in a speech on August 6. He said that she had seized, under the Axis cloak, large areas of Greek and Yugoslavian territory. "In doing so, Bulgaria showed herself hostile to her neighbours and to her own conception of Balkan unity. No doubt, to-day she was well pleased with her ill-gotten gains, but she might be assured that in the end they would not benefit her, and that her action would not be forgotten by ourselves, or our Allies, when the day of reckoning came."

Events in September were pushing Bulgaria closer to war. On September 11 Soviet Russia sent a warning note protesting against Bulgaria's attitude, allowing the country to be a jumping-off ground for hostilities against Russia. It was pointed out that there was a great concentration of German and Italian troops there ; that aerodromes were in German hands ; that the ports were being prepared as bases of attack and that Admiral Raeder was there to direct affairs. Bulgaria's reply, on the 15th, was obviously dictated by Germany, and some days later Bulgaria declared a state of emergency after the alleged arrival of Russian parachutists. King Boris went on a visit to Hitler at headquarters, where he doubtless received further orders. Pressure has been increasing on Bulgaria to declare war against Russia, and the exact moment is just waiting on events. The controlled Press is putting out that Russians are prepared to bomb Bulgarian towns, to excite animosity against Russia.

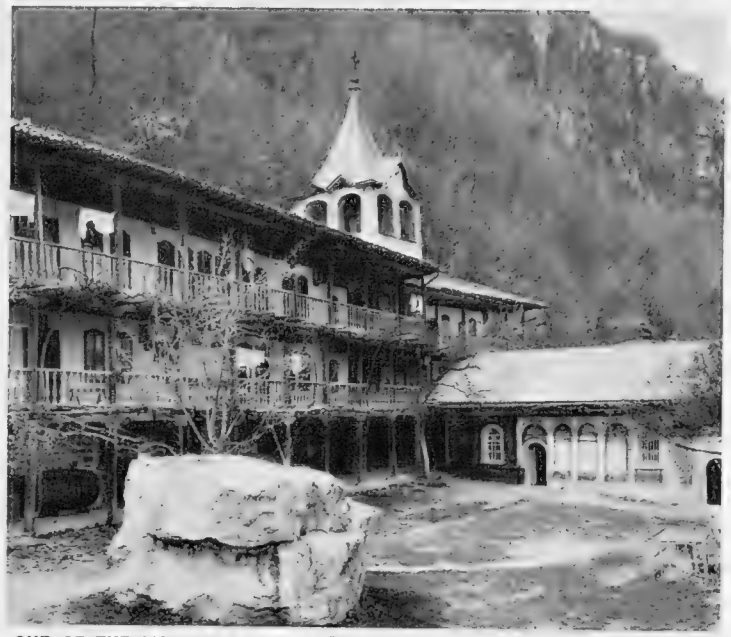
It is often stated that Bulgaria is closely akin to Russia, with a similar language and a deep-lying sentiment of Slav solidarity. But Bulgaria does not let sentiment rule in vital matters. She throws over friends when it suits her, she has broken with her allies, fought against Russia, to whom she owes her very existence, and attacked Yugoslavia when her neighbour was in dire straits. The Bulgarian people are described by many writers as industrious, thrifty, and brave, but Bulgaria as an independent State has an inglorious record of treachery and dishonour, and she seems prepared to add further blotted pages to a shameful story.

TO-DAY IN THE BULGARIAN CAPITAL : The modernistic and prosperous character of one of the principal streets in Sofia

THE CHARACTERISTIC SLAV ARCHITECTURE OF THE COUNTRY : A view of the famous St. Alexander Nevsky Church in the Bulgarian capital

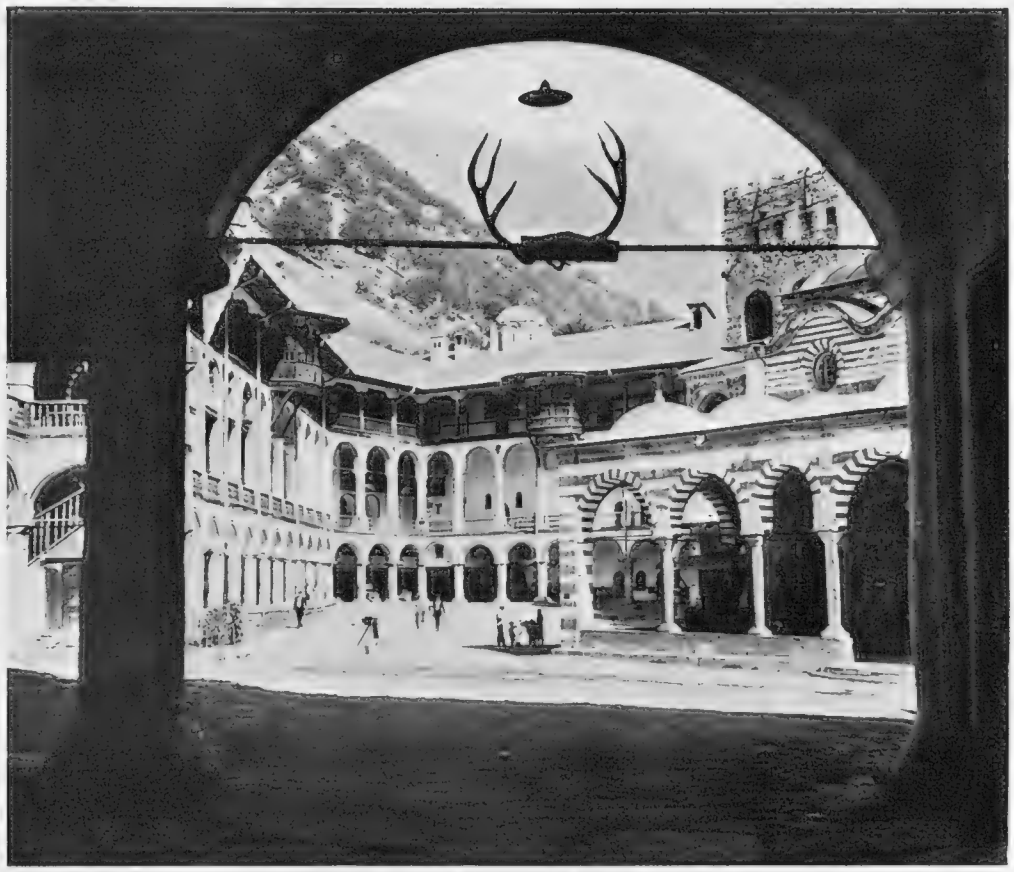
SCENES from the HEART of BULGARIA

NEAR BULGARIA'S FORMER CAPITAL: Tirnovo on the Yantra River is situated between Rustchuk and Stara Zagora. It was here that Bulgaria's independence was proclaimed in 1908. This wool-yarn spinning mill and leather dye plant is picturesquely situated near the former Bulgarian capital



ONE OF THE MANY MONASTERIES: Bulgaria is a land of monasteries, many of them very picturesquely placed and of great antiquity. The above is the courtyard of the famous Preobrajenski Monastery, on the cliffs above the Yantra

THE BLACK SEA PORT OF BURGAS: This is Bulgaria's principal outlet by sea: most of the country's grain is exported through this port. From here to the Crimea is some 350 miles by sea. In this picture grain is being loaded direct from the peasants' wagons



GERMAN HEADQUARTERS DURING THE GREEK CAMPAIGN: The German High Command established themselves at the historic and famous Rila Monastery—one of the largest buildings in Bulgaria—during their campaign against Greece. Rila is more than a monastery—it is a fortress, standing on the southern slopes of the Balkan Mountains, within a few miles of the Greek border and near the Struma Valley

A PICTURESQUE SPOT IN THE HEART OF BULGARIA: This is the Turkish village of Acenobo Maxua, set on the banks of the Yantra. The Emperor Acen, during his rule over the country, built his castle at the foot of the hill on the right. The road to Tirnovo can be seen winding up around the mountain beyond. Throughout Bulgaria the Slav influence is everywhere to be seen, and the people are reported to be in sympathy with Russia rather than with the Germans to whom Boris is forcing them

THE SHIPKA PASS THROUGH THE BALKANS: This is one of Europe's better-known strategic mountain passes: it was the scene of an historic battle between the Turks and the Russians in 1877 during the Russo-Turkish War. The picture above was taken from a point looking southwards from the top of the Pass

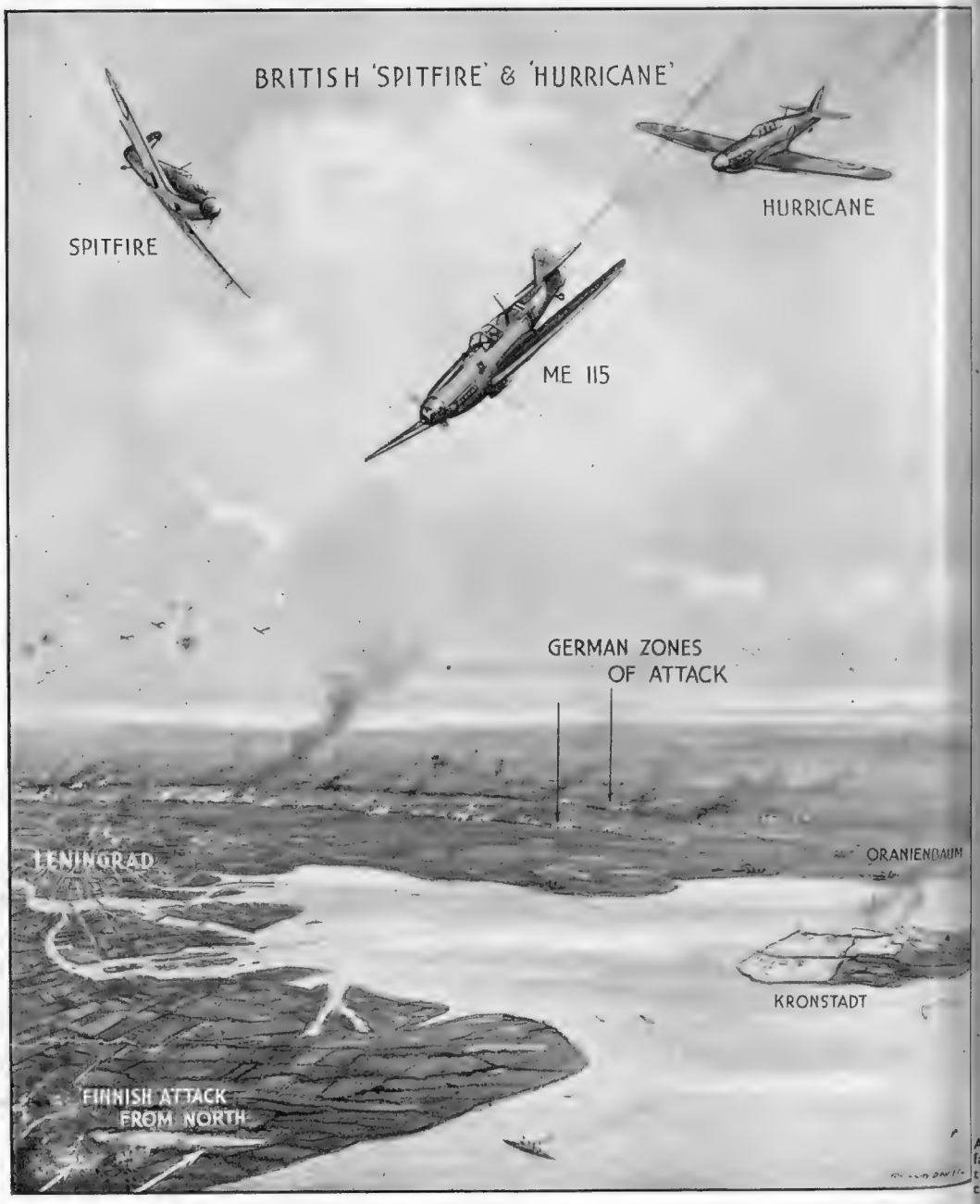
LENINGRAD FIGHTS BACK from a ring twenty-five to thirty miles from the capital—*A diagram, which illustrates the position, by Percy Home*

From a number of communiqués and reports published from both camps, it is now possible to locate the defence ring on the south and south-west of Leningrad where the main resistance to the German attempt at encirclement has been made. The above view shows the suburban environs of the city. From the famous central portion of Peter the Great's city there stretch northwards several outlying sections of the city; they follow the Viborg road for a certain distance. To the S.E., riverside suburban groups of houses line both banks of the Neva. To the east, suburban areas stretch along the shore of the Gulf of Finland. None of these inner areas has yet been reached by the enemy. It is not until one has penetrated the wide, slightly-undulating stretches towards GR. Poulkova that one begins to get within reach of the guns. At the end of the month the actual battle zone ran roughly through Oranienburg through Krasnoie Selo to Tsarskoie Selo. The resistance of the Russian garrison had prevented any further advance. Oranienburg, approached by the Germans, was not "12½ miles from the city," but 25 miles from the centre of Leningrad

THE PARTISANS OF THE SOVIET PLAN THEIR CAMPAIGN: The leader of a Russian guerilla band outlines the plan for a coming foray to his detachment hidden in a secret meeting-place. Among his intent audience are a number of women

On right—**ENDLESS AIR BATTLES OVER LENINGRAD between British Spitfires and Hurricanes and the new Messerschmitt 115**—*Drawing by Roland Davies*

Air battles of a size and intensity comparable with those in the Battle of Britain have been raging almost unceasingly above the city of Leningrad during recent weeks. British Spitfires and Hurricanes, piloted by the Russians, have been meeting the new Messerschmitt 115 fighter, which has been in action for the first time on this front. This has a smaller wing span than the Me 109, but has a more powerful engine and is capable of a greater speed—about 400 miles per hour. In Mr. Davies's drawing the lay-out of Leningrad and its naval base at Kronstadt is shown: both places have been the target of the Nazi bombers



THE RUSSIAN-BUILT RATA MONOPLANE, which has been doing very good work against the German bombers of Leningrad—*Drawing by Roland Davies*

During the Spanish War, aeronautical observers throughout Europe were electrified by the successes of a new-type Russian fighter aircraft: in many air combats its great manœuvrability enabled it to shoot down numbers of German and Italian aircraft fighting on the side of Franco—until, at last, the Germans were forced to produce their latest fighter-type, which they had, up till then, wished to keep secret. This single-seater Russian aircraft was the Rata—or I 16—pictured above. To-day, however, it is outclassed in speed by the more up-to-date fighter designs of the Germans: nevertheless, it has been doing very good work of late in the skies above the Northern Capital, shooting down the slower German bombers intent upon daylight raids. It is a low-wing monoplane with metal, fabric-covered wings and wooden fuselage: it has a 750-h.p. radial engine, which gives it a maximum speed of 280 m.p.h. and a range of 500 miles: it is armed with four machine-guns. Later types, however, have a 1,000-h.p. engine, which gives a corresponding increase in speed

ONE OF THE OLD-TYPE HEAVY RUSSIAN BOMBERS attacking military targets behind the lines by night—*Drawing by Roland Davies*

Although a good deal of bombing by the Russians has been short-range work, they have done a fair amount of night operations. The Rumanian oilfields, Berlin and other objectives well into the enemy's interior have been bombed; but the principal bomber formations have been used in close support of their ground forces. Russia has a number of bomber types, but some of them are of very early design and not altogether fitted to present-day war conditions. The aircraft depicted by Mr. Davies above is powered by four engines: Russia was known to possess a number of these at the outbreak of war, of two types. It will be noted that both wing-span and length are fairly considerable: the curious double-wheel undercarriages are non-retractable

HOW LONDON IS REALLY DEFENDED

A Comprehensive, First-Hand Survey of the New Ideas for the Anti-Aircraft Defence of the Capital, Showing the Great Advances Which Have Been Made in the Past Months

By CHARLES GRAVES

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IT is usually dangerous to make any prophecies about aerial warfare, as Air Marshal Sir Philip Joubert and Air Commodore Goddard found to their cost. Nevertheless, having investigated the anti-aircraft sites and personnel, it is safe to say that the defences of London are at least three times as effective as they were on the night of May 10, which was the last big "blitz." There are two anti-aircraft divisions protecting London—a figure amounting to over 25,000 officers, N.C.O.s and men. Their armament includes 4·5's, 3·7's, Bofors, 3-in. guns, balloons and numerous other devices.

BRITAIN'S ANTI-AIRCRAFT CHIEF: Lieut.-General Sir Frederick Pile: Since 1939 Sir Frederick has been the General Officer Commanding-in-Chief, Anti-Aircraft Command. He is fifty-seven years of age, and entered the Royal Artillery in 1904. During recent years he has been successively Assistant Director of Mechanisation at the War Office, 1928-1932; Commander, Canal Brigade, Egypt, 1932-1936; and Commander 1st Anti-Aircraft Division, T.A., 1937-1939

The bulk of the armament are 3·7's, which are grouped in fours and eights. This is entirely apart from the naval defences along the lower reaches of the Thames.

The increase in efficiency of the defences lies not so much in the number of guns as compared with last year as in the improved methods of fire control. This applies not only to London but to Cardiff, Coventry and numerous other places which have also been badly "blitzed." In addition to radiolocation, the guns are now better dispersed and grouped. The 3·7 guns, it may be pointed out, used to be used as mobile guns. To-day the sites are all being made static, though it would take only fifteen minutes to move a whole battery if necessary. The improvement in radiolocation has helped the gunners very much.

The respite of the last five months has also enabled the anti-aircraft gun crews to calibrate their guns. This means that they have been able to test the limit of their range and accuracy on every bearing and angle, thus reducing error all the time. In addition, most of the batteries have gone to practice camp at least once since then.

At the start of the "blitz" in September 1940 the anti-aircraft night defences of London were by no means perfected. Searchlights could not guarantee illuminating the targets at the heights of the attack, and the sound-locators were not efficient or strong enough to be of any assistance. It was largely a matter, therefore, of having to send up blind curtains of fire at the points where it was presumed that the Germans were attacking. Sheer weight of metal was what we had to rely on. To-day things are very different. In the gun operations room, concealed in a secret but immensely powerful subterranean fortress in the heart of London, the General Officer Commanding the A.-A. defences sits and can direct every gun under his command at a particular point in the sky where the enemy have been located. The Operations Room is primarily a gigantic telephone exchange with a master telephone on which the Major-General can speak to every gun site simultaneously. The technique is so far advanced now that he can order a dozen big barrages and a number of smaller ones at the same time. If, for example, he now receives a telephone message to say that a certain section of the City is on fire, he will promptly order a special local barrage to protect the area from the succeeding waves of bombers coming over with high explosives to add to the destruction below. Nowadays there is no free-lancing by individual batteries. All gun sites are controlled, and have to fire on a certain barrage, according to the map square indicated to them.

And now to kill some rumours. Because of the black-out, many people think that sudden flashes that light up the sky momentarily are some new form of giant detector ray. They are nothing but the light caused by electric trains in the suburbs, the brightness of which is immensely magnified by the black-out. Another point is that all the talk of naval guns in London itself is sheer nonsense. People mistake salvoes of 3·7's or 4·5's for some huge weapon or other. There was a popular story that a naval gun was used on the Tube track outside Ealing. There were also stories about 3-in. guns tearing up and down the main streets of the West End and loosing off at street corners. This is equally absurd.

HOW TO DIFFERENTIATE BETWEEN THE 4·5 AND THE 3·7 GUNS: The 3·7-in. gun has a less vivid but rather more elongated flash than the heavier and longer-ranged 4·5 gun. It has a relatively longer barrel, to get the utmost possible effect from the charge which drives the shell—the flash produced by the gases from that charge is correspondingly attenuated. The 3·7 gun fires a shell of 28 lb., ten times a minute to a height of 40,000 ft.

A COMPARISON BETWEEN BRITISH ANTI-AIRC

British: There is nothing very spectacular about British anti-aircraft fire. A ne type powder is being used for the shells, and they have a large bursting ra Tracer bullets are used for putting out the enemy's flares. 1—Shell burs 2—Searchlights; 3—Tracer bullets; 4—Anti-aircraft gun-flashes

6-in. guns have never been used in the defence of London. Unless t enemy use sub-stratosphere bombers, which we hope and presume th do not possess, they are quite unnecessary. Besides, we have va quantities of ammunition for the 3·7's and 4·5's.

Other improvements in the defence of London include the searc lights. It is now considered out of date to have them on the sam site as the guns, for if the raiders happen to get the right angle of visio from above, they can see the gun sites as clear as daylight. Th future of the searchlight is a matter of great speculation. Sometime as all Londoners know, they have not been switched on at all durin a raid. On other occasions they have been used with mass density At least, however, it is safe to point out that Bomber Comman recently revealed the fact that the searchlights have saved ma hundreds of British bomber aircraft on their way back from raidin the Continent. They are used as homing beacon lights, sometime being pointed at barrage balloons to enable the tired bomber to avo the cables. On other occasions they are used to steer night fighte who have gone up and can tell from the individual searchlight in whi

FIRE AND GERMAN "FLAK"—*Drawing by L. Ashwell Wood*

German: The Germans go in for a variety of firework effects, aimed at lighting up the aircraft. "Flaming onions" (incendiary shells) are used a lot. A—"Flaming onions"; B—Star shells; C—Shell bursts; D—Spent shells; E—Tracer bullets; F—Tracer shells; G—Searchlights; H—Anti-aircraft gun-flashes

map square they are proceeding. The searchlights are also used for guiding night fighters who have lost their way. Every method, in fact, of co-operation between the R.A.F. and the A.-A. defences is being used to the full.

During a raid, Fighter Command and Bomber Command are in continuous telephonic communication, and when the signal goes out that the night fighters are going up, every gun crew is informed of their datum line. This is the altitude 2,000 ft. below which is the maximum height for their shells to burst, and 2,000 ft. above, which is the minimum height at which the fighters may fly. This means that any aircraft below the datum line can be shot at with impunity even when our fighters are up.

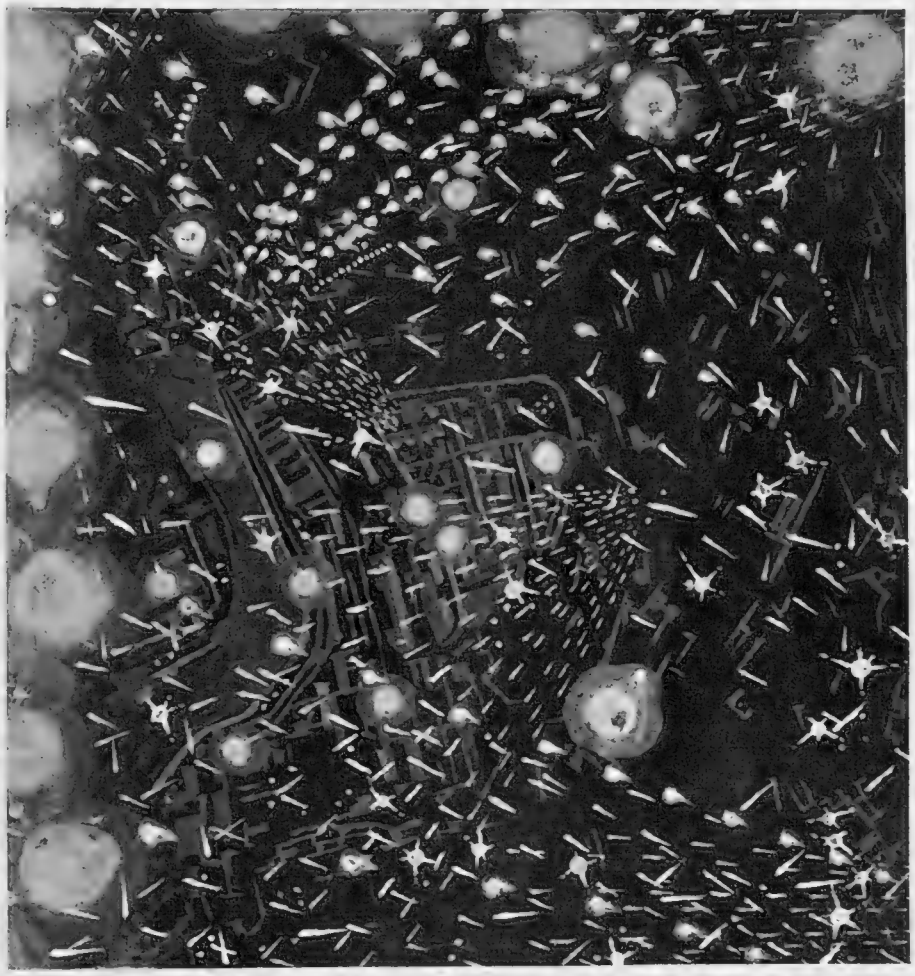
After each raid a full report of the night's work is sent by the Senior Officer of each anti-aircraft site to Headquarters, where the Intelligence Officers piece it all together. Details include the number of rounds fired, the direction and approach of the enemy aircraft, and the effect of the fire. This is always noticeable because the bombers (usually Junkers 88's) take avoiding action. But

WHAT THE PILOT SEES OF AN A.-A. BARRAGE

The photograph *on the right* was taken during a night attack on Brest. The exposure was from three to four seconds, and a terrific barrage has been recorded. Below all these paths of light, experts have been able to trace factories and other buildings. The pilot, however, does not see the scene in the same way as the camera: what the camera has shown in the picture on the right would be seen by the pilot as below. In making this sketch-impression our artist has allowed a little drag to tracer shells and "flaming onions" because of the momentary retention of images characteristic of eyesight. It is interesting to note that it is quite impossible from the photograph to work out the actual sites of guns and lights.

In the *lower* drawing, the large blobs are searchlights: the smaller blobs are star shells; the stars are normal shell-bursts; the "commas" are "flaming onions"; the "tadpoles" are tracers; the pin-points are gun-flashes; and the two little lines of dots are fire-bombs.

HOW THE CAMERA RECORDS THE BARRAGE: From an official Air Ministry picture taken during a raid on Brest



BUT THIS IS HOW THE PILOT WOULD ACTUALLY SEE THE SAME BARRAGE *(For a full description see the accompanying notes)*

hundreds of planes have undoubtedly gone back to Germany with the pilot killed or the observer killed, or bits knocked off them. They can be detected limping home; losing height consistently, and frequently presenting a particularly easy target to the night fighters who are waiting for them as they try to make their base in a crippled condition.

In addition to shooting down enemy aircraft, A.-A. defences are also busy shooting out flares. The 3·7 is usually used for this. What is particularly satisfactory is that dud shells are exceedingly rare, and there is a terrific row if and when this happens. All ammunition is examined every single day very carefully on each gun site, and is also inspected at frequent intervals by the ordnance mechanical engineer. Oddly enough, an illuminated target (in other words, a German bomber caught in the searchlights) is easier to hit than in daylight. This is because the black background makes it so easy to pick out; and it will be very seldom, in future, that any bomber caught in the searchlights will escape before being blown to bits.

Naturally, I must not speak about the other devices, but they can be guaranteed to add substantially to the strength of the defences when they are next used. Since May 10 (as I write and touch wood!) the maximum number of raiders in the neighbourhood of London has been six, and it was not thought worth while to put up a proper barrage or employ the latest devices against them.

The anti-aircraft crews themselves are all keen as mustard, and a visit to any gun site will show that the discipline is strict, and yet the Russian Generals who paid one a visit the other day were all astonished at what they called the comradely atmosphere on the gun sites. They did not seem to think this was possible in a capitalistic country. They were greatly impressed by what they saw on the technical side, and this is a pleasing note on which to finish—we are well ahead of the enemy. In fact, once again the British Army has led the world in the sphere of tactics—witness the Bowmen at Crécy, Sir John Moore's infantry, the open formations at the end of the Boer War, and the tanks on the Somme!

"GENERAL WINTER"—In 1914 and 1941

A Comparison with the Winter of 1914-15 Shows that the Weather in Russia, extreme as it is, will not bring about a Slackening of Warlike Effort on Either Side. The Writer of this Article was Actually Present in Russia during the Last War and Writes from considerable Personal Experience

By FERDINAND TUOHY

FOR some time prior to Ambassador Maisky's putting of Generals Winter and Mud in their proper places in relation to Eastern Front warfare, I had scanned the correspondence columns in hope of seeing a letter signed either Knox or Neilson. Colonel Knox and Major Neilson were our Military Attachés with the Russian armies in the winter of 1914-15 and subsequently, and each (if still living) could have corrected those strategic thinkers, leader-writers and pep-talkers who were misleading the public with tales of imminent climatic benignity for our Ally.

These experts might have maintained themselves simply by consulting a history of the Russian Front in the last war. They would have found that in the period corresponding to that now lying directly ahead, which is to say November to March, 1914-15, Russians. On the 25th the Germans lost the first Battle of Warsaw, even if they were able to occupy Lodz on December 6. As usual at that time, they won this advantage owing to the Russians wirelessing operation orders *en clair*.

On December 8 the Grand Duke advanced on Cracow, but heavier fighting still was initiated four days later by the Austrians, when the scene changed to the Carpathians, then several feet under snow. That did not prevent the Austro-Hungarians from driving Radko from the Dukla Pass, nor their assaulting with similar success the Lupkov and the Uzok Passes. Were the Russians to lose all the benefit of the memorable offensive with which they had started the war in these southern regions? The Grand Duke lavished what he still could on his commanders, winter or no winter, with the result that a fortnight's bitter campaigning brought Radko back to the Dukla by Christmas, and Brussilov to the other two passes by the end of the year. Then that mountainous front did go to sleep until March, and with besieged Przemsyl in the middle of it.

AT THE END OF THE LONG WINTER MONTHS: The break-up of the ice on one of Russia's great rivers, the Vistula, in 1914. The staves are placed in the stream as protection against the great ice-masses

Yet the winter's tale of attack was to proceed uninterruptedly in the East, while all was quiet in the West from the end of First Ypres in November, until Neuve Chappelle in March (on the French front a like quiescence). In January, Hindenburg launched "the fearful winter battle of the Masurian Lakes." This was undertaken to rid German soil of the last Russians and to fortify the German flank in view of future massively planned operations to the south. The Germans underestimated General Winter on this occasion, and the old "Wizard of the Marches" took resounding knocks from the Russians, who, however, themselves admitted to 200,000 casualties.

"GENERAL MUD" IN 1914: One of Russia's roads suffering from the effects of too much traffic and too much snow and water

Meanwhile, the Russians had had to develop a new front in the Caucasus in mid-winter, consequent upon the Turks entering the fray. This time the Russians were wrong in imagining that Caucasian winter would keep the enemy off. Battles followed in ice and snow, sometimes as high as 6,000 ft., as at Kars and Erzerum, until on January 3 the Russians fairly mopped up the Turks at Sarikamish, and took their commander, Iskan, prisoner.

Scarcely had I regained Warsaw from the northward than the second thrust for that hub, to be known as the Battle of the Bzura, was loosed off against Gourko's army. The Germans had by now got wind of their opponent's utter penury of munitions and hoped to storm the Sokachev defences. And hardly had that February thrust been decided in our Ally's favour, than there burst forth a new battle series on the lower East Prussian frontier, of which Praznych and Ossoviecs were to be the placenames. That arctic affair lasted into March.

I attempt no comparison whatever between Russia's condition at the close of winter in 1915 and on its threshold in 1941. Several things are so different or uncertain. There's a lashing fury in the Red Star Army that was lacking among its chorusing, less aware fathers. But Tsarist Russia had Japan as ally in its rear, not as peering jackal. That distant Russia, too, preserved nearly all her producing towns and vital railways. And so forth.

What one can say is that, in a week or two's time, the entire Eastern Front from Murmansk to the edge of Yalta will pass under frigid conditions, so to remain until April. Dry arctic or Asiatic blasts will constantly sweep Russia, bringing much the same temperature at Kazan as at Archangel and at Rostov. The Black Sea fringe alone will escape, and Yalta, its warmest spot, will be as cold as Caithness. The cold will be as extreme in the Ukraine as in most other regions, but the notion that on that account no more war of manœuvre will be possible locally is sheer guesswork.

We may not know what terrible cold is going to do to mechanised warfare. There was none of this in the dismal Maginot winter, and none again during the milder winter that followed. But we do know that the treeless steppes of the south are easier for tank advance than the forest marches of the north. And there is obvious ground for expecting that motorised going will be easier over layers of snow frozen hard, than in early spring and autumn, when the ground is saturated. Moreover, a dry cold is much easier to bear, especially by the feet, than the chilling slush of those two seasons out in Russia.

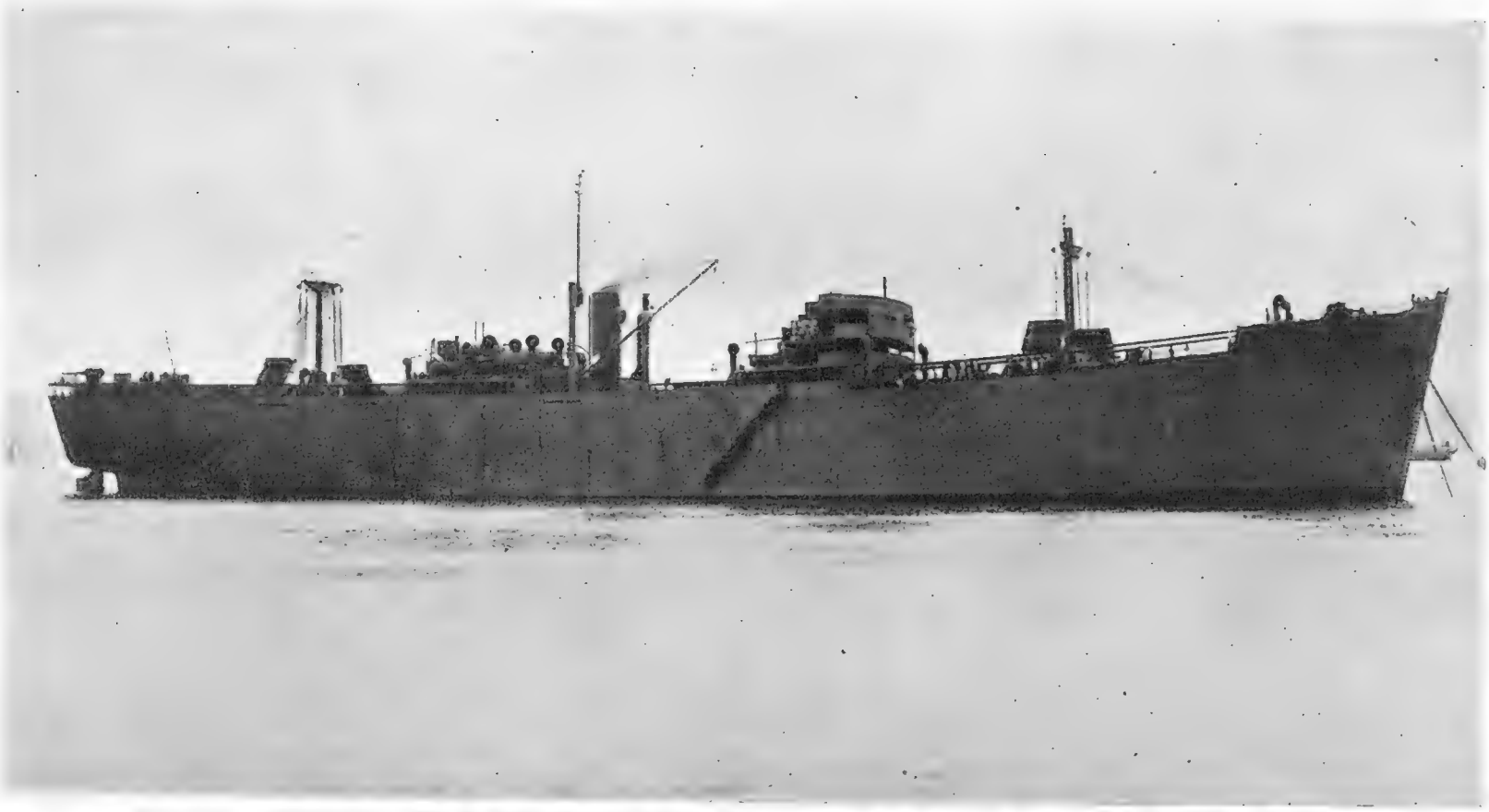
A correspondent reported from Yelnia: "For the first time I felt 'General Mud's' real slimy and steel-like grip. We were bogged dozens of times, and we made less than 18 miles in over seven hours." The change-over soon from that to frozen surfaces will be very abrupt. For all we know, tanks and mechanised transport may be having their worst time hereabouts in the octopus ooze. Or, as the *Manchester Guardian* puts it: "The only certainty is that it [an Eastern winter] can hardly throw mechanised transport into such terrible disorder as surrounded Napoleon's horse and foot of 1812. When it freezes the marches it may restore mobility to tanks and cars. In the farthest north of all, it is the winter which sets the Eskimos free to go hunting over the solid ice; General Winter may confer a similar freedom on the Panzer divisions. But any mobility which is conferred cannot be restricted to the German invaders; it must also be at the disposal of the Russian defence."

Mention of Napoleon reminds that he was beaten by Field-Marshal Hunger as much as by Generals Winter and Mud, and that here Hitler has the bulge, since he is not proposing to live on a frozen (and scorched) country, as did Napoleon, but has laid communications for the purpose of bringing up food from behind, notably from the Balkans.

Yet this is all presupposing that Hitler intends campaigning through the Russian winter, whereas it may be his intention — Russians permitting—to dig in at as many sheltering town-remnants as possible, set vital repair work in train, and then to go panzering off elsewhere —the Caucasus—Africa. He may reckon he will have flattened the Russians sufficiently by November to enable him to do this. But remember, he fancies himself also as climate-tamer. His wintry descent on Norway was a masterpiece, painstakingly prepared in the high Dolomites, while his hot-house-trained Afrika Korps has stood up to torrid Cyrenaica. I sit up when I read that Germans are optimistic about Russia because they know of the minute preparations being made by a former winter trench-squatter.

"The textile industry has been working exclusively for the Army since October 1940, and extra blankets, special boots, warm gloves, snowshoes and Alpine equipment are flowing to the front. There is a parallel flood of double-walled wooden huts, stoves and vacuum-flasks." The last are to cope with the freezing or bursting of water carried normally in Russian winter temperatures, which may register 60 or 70 degrees of frost at night in Timoshenko's present zone. We may be quite sure, too, that Hitler will be on to the Russian transport cure of fashioning wide ice roads by constant flooding, and supervision, as he will have gadgets to tackle failure of petrol to vaporise in the really low temperatures, such as immobilised Russian tanks and transport in Finland for that reason.

I can well believe in the flood of anti-cold *everything*, having long thought that we pay insufficient heed to the immensity of Hitler's all-round Continental production, and to its war-winning potentiality.



To REPLACE our WAR LOSSES at SEA

ONE OF THE NEW "STANDARD" STEAM TRAMPS BEING BUILT IN HONG KONG UNDER THE WARTIME PROGRAMME

These fine-looking and serviceable vessels are 425 ft. long, 56 ft. in beam, and 35 ft. from deck to keel: they have a dead weight of 10,050 tons. They are being built in shipyards in China and will prove a very welcome addition to Britain's mercantile navy, depleted owing to enemy action. Hong Kong is only one of the many shipbuilding centres throughout the Empire and in Britain itself where new merchantmen are being constructed to take their part in the vital Battle of the Atlantic

An OPERATION at SEA

How the Royal Navy Tackles an Urgent Case of Illness

THE DESTROYER HAS COME ALONGSIDE A BRITISH CRUISER AND THE "COT" CASE IS BEING TRANSFERRED FROM THE FORMER TO THE LATTER: So that no time shall be lost in carrying out their unceasing patrol duties, the transfer is made while both ships are under way

One of the crew of a British destroyer has fallen ill, and an operation has become an urgent necessity. In "cot" cases such as this, where a major operation is needed which cannot be performed in the necessarily cramped hospital quarters of the smaller ships, the help of the heavier craft is sought, and the patient is transferred by means of a sling cot. The cruiser's crane (for the seaplanes) comes in very handy on such an occasion

THE WOMEN SCIENTIST

MISS J. SEUME, Technical Assistant at a Royal Aircraft Establishment, experimenting with one of the fascinating little models used in research work in connection with seaplanes

MISS J. M. HOOPER (B.A., London) is here seen harmoni the gun and sight used in a bomber turret

MISS K. M. HUNTER (B.Sc., London) carrying out experimental work on a gun turret. In this branch of aeronautical science Britain leads the whole world to-day

MISS M. G. HOGGARTH (B.A., Cambridge) engaged on testi torpedo sights for use in Fleet Air Arm aircraf

MISS M. B. SAUNDERS (B.Sc., London) engaged on research work in connection with rubber used for bullet-proof petrol tanks in British aircraft

MISS F. J. RUTTER (B.Sc., Exeter) is here seen in a wind tunnel, carrying out resea with a monoplane model in connection with aircraft spinning

WHO WORK on BRITISH AIRCRAFT

MRS. A. H. BOYLES (B.Sc., Bristol) making adjustments to a range-finder, a most delicate and complicated business

MRS. RICHARD PEARSE (formerly Miss Dorothy Spicer, the famous airwoman), Technical Assistant, engaged on engine experimental work

MISS BRENDA RIMMER (Technical Assistant) starting off for an experimental flight in connection with the measurement of air speed

MISS K. HARRISON (B.A., Cambridge), whose work is to carry out researches in connection with the airman's parachute

Many thousands of women, of all grades of society, are assisting in Britain's war effort in various capacities. But, up to the present, very little has been published concerning the activities of the group of scientists shown in the pictures reproduced on these pages These women are all eminent in scientific research work, and their talents are now being employed by the Ministry of Aircraft Production at R.A.F. establishments in England. Naturally, much of their work is of a very secret nature; and few details may be published concerning it. But it may be taken as certain that their work is materially assisting in the development, and maintaining the high standard, of British aircraft to-day

The World of Books—By Vernon Fane

AN OUTSTANDING WARTIME WORK

A Great Novel by Maurice Hindus; Tragedy on the Farm; Stephen Lister's Café Society; A Chronicle of Chinese Life

IN spite of the fuss that was made of Ernest Hemingway's last novel, I doubt whether a work of fiction with any lasting value has been produced during the past three years. Contemporary literature has not been enriched by anything during the period of the war or the uneasy year or two which preceded it. This reflection is provoked by a reading of a very long novel by Maurice Hindus, TO SING WITH THE ANGELS (Collins. 9s. 6d.), for here is so outstanding an example of a great work that it is difficult to assess it in terms which the average working reviewer finds himself obliged to apply to the current stream of mediocrity.

THE DEATH OF ROBERT BYRON: It has now been definitely reported that this promising young writer and man of affairs has lost his life owing to enemy action. Robert Byron had a remarkable knowledge of Persia and the adjoining regions. It is understood that he was on his way to take up an important position in that district when his career came to its untimely end. Born in February 1905, Byron was educated at Eton and at Merton College, Oxford. His first book, *Europe in the Looking-Glass*, was published at the age of twenty-two, but it was with *The Road to Oxiana*—considered by many to be his most brilliant and characteristic work—that he achieved recognition. In this study of the Middle East he revealed a deep knowledge and understanding of the architecture of Northern Iraq and Persia. Byron's knowledge of the East seemed to strengthen his sense of the value of European civilisation and especially of Britain's contribution. His interests were strongly developing towards the world of politics just before his career was brought to its abrupt close

It begins quietly enough in the little Czech village of Liptowitse, and never in the course of 509 closely-printed pages does it move very far from that tiny corner of the world. Yet, what happens in Liptowitse; what happens to the Mayor, Janek Marchek, and his daughter, Allichka; what happens to Heinrich Liebergut, the cabinet-maker, and the only German in the village, and to his son, Jozhka; what happens to Lolek and to Dr. Kohler; to Liebushe Sobotka, the Professor's daughter; to Alena Vanek; to the village priest, to the choir-master and to all the otherwise happy citizens of that little town, is something which would shake the world.

The story opens with this sleepy little place in the heart of Moravia, with the picture of its life under the beneficent and enlightened rule of the new republic. Then came the rape of Austria and the great betrayal of Czechoslovakia. Hitler, declaring he had no territorial ambitions in Europe, tore these provinces from the prostrate State of Czechoslovakia and declared them to be a Protectorate. Fanatical youths were soon to rule and to subdue whole communities where scarcely a person of German blood had ever lived for centuries. The son of the cabinet-maker, the only German in the village, had met the Führer at the Brown House at Munich. He had listened to his harangues, and the youth returned to his native village with power and with a terrible fanaticism to support and implement it.

Families had to be dispossessed so that the German doctrine of *lebensraum* could be fulfilled, and Boltz and Tyrolese imported under flimsy pretexts. The fanatical Joshka, who by that time had married the Czech girl, Allichka, found himself having to choose between family ties and his own personal love ties and the dreadful urge of his creed. Allichka breaks with him and goes back to her family. His parents disown him, hide themselves and break their hearts. He arrests his own father and turns him over to the Gestapo for the kind of treatment of which he is well aware. He personally is responsible for the practising of atrocities upon his own schoolmates, some of whom are sterilised by this dreadful machine.

So this otherwise happy and prosperous little peasant community is oppressed by an awful tyranny, torn asunder, ravaged, burned and pillaged in order that the German Reich shall "take its rightful place in the world."

It is a noble and most moving story, and in the simplicity of its telling and in the reality of its sturdy human characters who, both individually and corporately, represent so much that is noble in the human spirit, it is undeniably a great work.

The title of Miss Beatrice Kean Seymour's new novel, HAPPY EVER AFTER (Heinemann. 8s. 6d.), might lead some of her faithful readers to suppose that this is a story in the intimate and inconsequential mood of her Sally books. It quickly becomes apparent, however, that the title has a distinctly ironic inflection.

For when Brenda Martindale, who was the daughter of a Cumberland farmer, fell in love and married the attractive Luke Stretford, she no doubt hoped that her love-match would bring her happiness for ever after. But Luke turned out to be a shiftless character, with an insatiable obsession for gambling. She found that she had also married his predatory, possessive and completely soulless mother.

In these circumstances, and with the passing of the years, she fights for the integrity of her family life and her home, but it is an unequal struggle. She loses two of her children, and when finally a tragic incident occurs in her house which drives her away, she takes her little daughter, Dale, with her. Not even then can her pursuit for some sort of happiness be fulfilled. For Dale grows up to be very much her father's child, and in the end brings more tragedy into her mother's life.

There are moments when it seems as if Miss Kean Seymour is going to bring her heroine to a happy issue out of all her afflictions. But this is not to be the author's theme. She manages to extract from this tale the maximum of effective suspense in the technique of her action. It is a powerful novel, but I cannot be quite sure whether Miss Kean Seymour brings it off.

Mr. Stephen Lister, whose satirical exercises on a sophisticated theme will have been well noted by readers of *Savoy Grill at One!*, has another whirl with café society in CONSIDER THE LILIES (Peter Davies. 8s. 6d.).

Mario Bartolozzi was a name to be conjured with, and indeed respected in the kind of society which hung round the smart hotels of London, Paris, New York and the French Riviera. Mario was rich and powerful, and it did not matter to him whether his clients knew or did not know that his son, Grigorio, was entered for a famous public school while still in his cradle. What could be more natural than that when the boy actually arrives at the school and his identity becomes known he should acquire the nickname of "Spaghetti."

Spaghetti had artistic leanings, and tried his hand as a sculptor in his father's native Italy. From there he drifts to the French Riviera, where he dabbles in painting and music, becomes quite a good professional dancer, and finally turns gigolo. He had all the attributes: charm, a little talent, good looks, and his love-affairs were many and varied. One of them brought tragedy and pathos in its wake. It is all very superficial, incisive, satirical, and, one must admit, in the main amusing.

Being happy might almost be called the national pastime of the Chinese. It would be difficult to explain quite how they contrive to be happy, considering the manifold miseries of their lives, but the fact remains that they do. Moreover, their capacity for happiness is infectious, and in DAWN WATCH IN CHINA (Collins. 12s. 6d.) Miss Joy Homer catches the note, sustaining it throughout a vivid chronicle of almost incredible hardship and adventure.

Sent out as a reporter for the United American Relief Board, the author wastes no time on the cynical indifference of Shanghai, but plunges headlong into Free China—a China uprooted by war and struggling through one of the most sweeping revolutions in her long history.

Here she sees the New Life Movement in full swing. Hospitals, schools and Western hygiene replace dirt and superstition. After each air raid the wounded pour in. With smiling stoicism they watch the amputation of their own arms and legs performed by nurses and doctors dropping with fatigue. But the work goes on, and the sacrifice is unquestioned in the new faith which fills the Chinese people.

Air raids we know all about, but in China there are no shelters, houses are ramshackle huts, and once fire has caught hold a whole city may be virtually wiped out in one raid. The author describes her own hairbreadth escapes, heroic efforts to save medical supplies, and that strange manifestation of happiness amidst all the pain and ruin.

Over it all pervades the personality of the Generalissimo, Chiang Kai Shek, and his remarkable wife. Chiang remains Chinese, but Madame Chiang is taut with resolve to build a new Westernised China. And finally there is the great mass of common people, warm, human and with a zest for life unequalled by any other in the world. Miss Homer loses her heart to them and gives us a picture of the Chinese character all the more accurate for being drawn with sympathy and understanding.

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This Society always welcomes news of its Old Boys, and a very pleasing letter has been received from one who received his training in the *Arethusa* in 1931 to 1932, telling how, now in the Army, he has forged ahead and become a full-rank N.C.O., the youngest in his Battalion. His best way of saying "Thank you" to the Society for giving him his first start in life is expressed in the following sentence: "I am married to an A.T.S. girl and have a bonny six-months-old boy who is booked for T.S. *Arethusa* in 1955! He is definitely going to have a good start in life in the *Arethusa* if still in existence, the same as his father had." Will *you* take a share in supporting this old-established Society, to ensure that the work SHALL be in existence still in 1955? It is only by voluntary contributions that the work can "carry on." Address your gift to Headquarters, 164, Shaftesbury Avenue, London, W.C.2.

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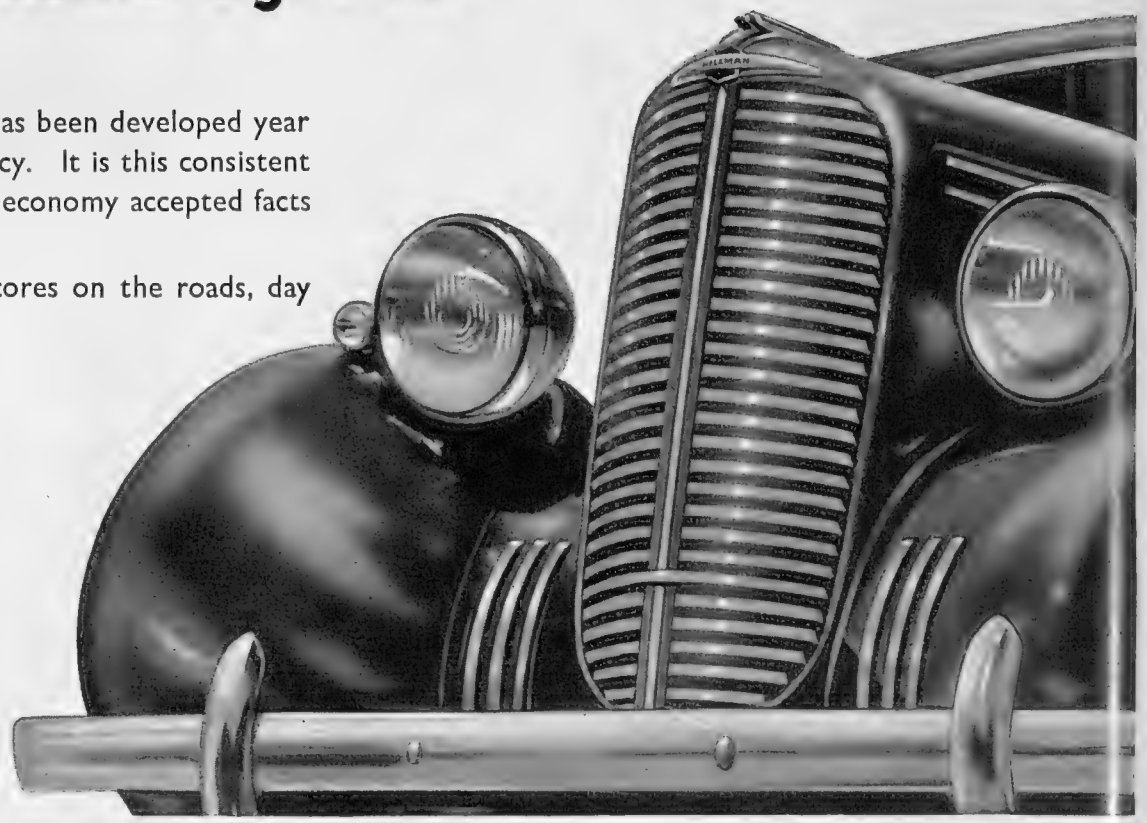

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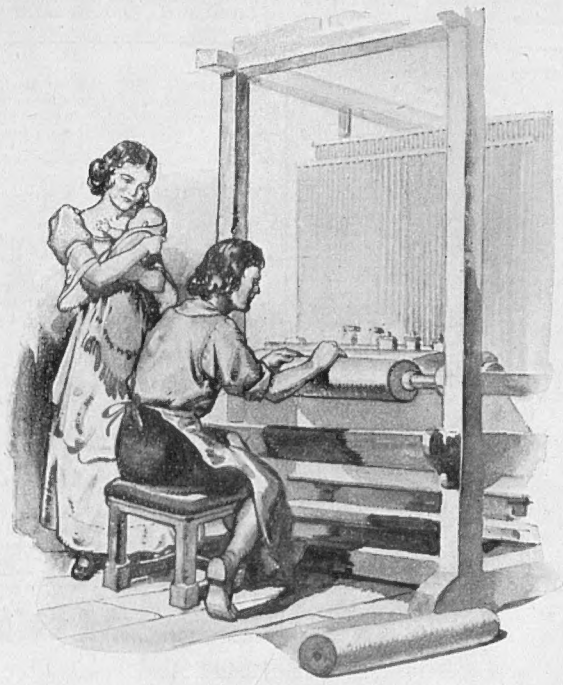

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IN QUEST OF GOOD HOTELS

BY ASHLEY COURTENAY

Owing to rationing of paper and the demand on our editorial pages, it is necessary to omit from time to time Mr. Ashley Courtenay's usual weekly article. We would, however, emphasise that his services are always available for advising SPHERE *readers by post of hotels, both large and small, known to him personally. Letters, accompanied by a stamped, addressed envelope for reply, should be addressed to him c/o The Editor,* THE SPHERE, *Commonwealth House, 1, New Oxford Street, London, W.C.1. Personal and telephone inquiries, however, cannot be accepted.*

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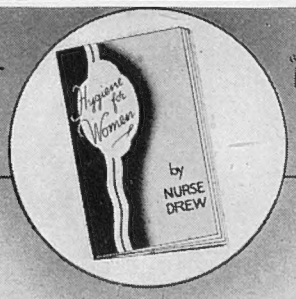

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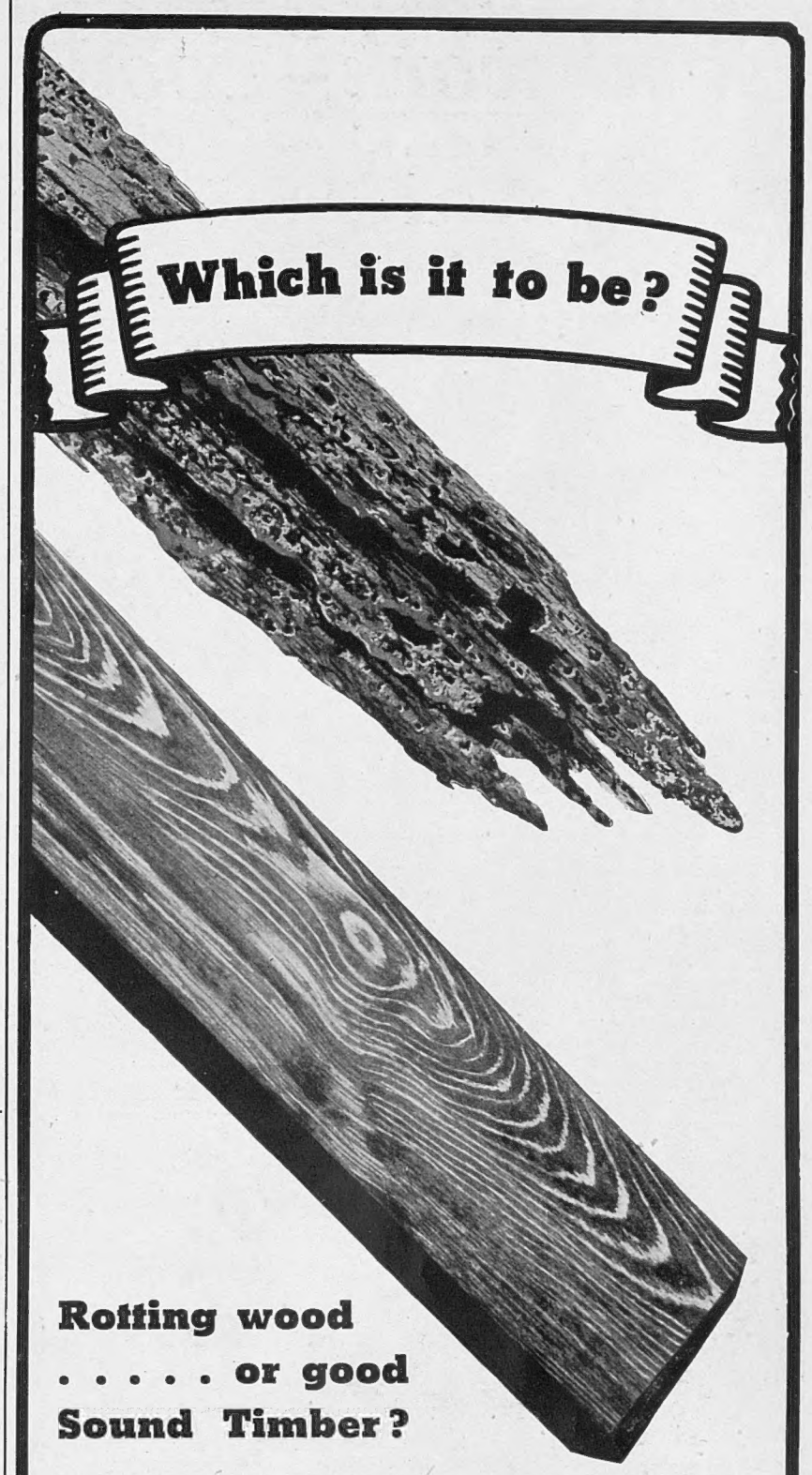

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